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News Stories About Honey Worth Millions to Beekeepers

By R. B. Willson

THIS article is addressed to the American commercial honey producers in general, and their leaders in particular. The suggestions contained herein are made in the belief that the raising at an early date of a substantial sum of money for honey publicity purposes is inevitable and the expenditure of such money being extremely important to us all, that every man's suggestion is worthy of consideration.

The writer has another reason for presenting herewith his ideas on this subject. Seven years ago the American Honey Producers' League raised \$5,000 for advertising honey, and to be brutally frank the expending of this money was actually wasted. Less than two years ago a generous offer to beekeepers by the supply manufacturers and packers of honey to assist financially in the raising of a \$25,000 fund was accepted for the producers, but the attempt to fulfill their part met with complete failure. Had they been successful, however, it seems that everything was in readiness to rush this cash into an advertising campaign that would have done the honey industry about as much good as if that sum of money in paper currency were put in an incinerator and burned up.

Let's spend that money where it will do the most good! But we haven't the money as yet, you say. No, we have not, but when the drive for the money is properly organized, as it can and will be, the money will be raised.

That honey is unique in being a product for which incredible quantities of free advertising can be secured is a fact known to every big bee man. The possibilities in this line are enough to turn green with envy manufacturers of mustard and cigarettes and everything else for which millions are spent annually in this country.

It is not possible to estimate accu-

Here is the answer to our advertising problem, stated by a man to whom quantity honey selling means bread and butter. Mr. Willson has charge of buying and selling honey for the John G. Paton Company, Inc., New York City.

Honey is a rich field for stories—stories that are welcome wherever news is welcome. To tell the wonders of honey is joy for the press agent. No other food product has this pull to the same degree that honey has, and food manufacturers would pay millions to get equal publicity value.

rately what a mustard manufacturer would have paid for the equivalent advertising that honey has received during the past year. It is safe to say it would have been well over a million dollars. There have been articles by beekeepers in big and small town newspapers, articles by professional experts in the feature food pages of the big dailies, radio publicity for honey, doctors prescribing honey, Kellogg's millions of contacts for honey converts, and others too numerous to mention. Most of this has been good, some of it bad. It certainly should be kept up and even increased as much as possible.

This advertising has been greatly effective, for it has dislodged the public from the stolid indifference it so long maintained for our product. But no one is so misguided as to think that honey is selling here at home in anything like the quantities it merits. The idea of our delivering to European buyers millions of pounds of our most beautiful grades of American honey at nine cents a pound, and that with three

handlers' profits included! No. Our domestic market can and must be developed. The simple means is more advertising.

There is no sum within the reach of the organized honey industry of this country that would make the slightest impression on the public mind if it were spent through an advertising agency for two-by-four space in one or two magazines of national distribution. To do such would be sheer waste. What we need and what the writer seriously proposes is a project for supplementing and materially strengthening the sort of advertising honey is getting now. But being everybody's job at present it is nobody's, and the quantity and quality of the output cannot be depended on.

Our honey industry needs and must have the aid of PROFESSIONAL PRESS AGENTS. Press agents, for anyone who doesn't know, are professional people who, for a certain retainer, predispose the public in favor of a person or thing, mainly through articles in the public prints, although the radio and resort to speech making are also now extensively employed. All famous actors and actresses have them, as do most people whose success depends upon being kept before the public. Honey is one of the very few commodities that can be press-agented, and it really lends itself beautifully to such kind of publicity.

To give an idea of the inestimable value of press agency work and the degree to which its value is out of all proportion to its cost, let us recite an offer made to our American honey producers through one of these folks who has been retained for several years by one of our foremost movie actresses. For two hundred dollars this person would prepare an article of sensational nature extolling the virtues of honey, that would cover a full page of the maga-

zine section of a Sunday newspaper, and this article would be syndicated and printed in perhaps not less than fifty dailies in the largest cities in the United States. And, this lady assures us, our honey folks need not pay for this work until it is in print! Consider that advertising for two hundred dollars!

It would be a simple task for a clever press agent to secure from each of our five most prominent domestic science leaders an article on honey for publication in our five leading women's magazines. One thousand dollars would cover every possible item of expense in securing such publicity, yet the mustard man couldn't get the equivalent advertising for fifty thousand dollars!

This problem of securing additional publicity for honey is one dear to the heart of this writer, and he has a deep-seated fear lest when the money is raised the expending of it will be turned over to an advertising agency. To successful organizations of this kind a thou-

sand dollars is a mere bagatelle. A thousand dollars to us is a lot of money. There is an abundance of able minds within the ranks of our own industry who on their own time and without charge would undertake to place the expenditure of such funds as might be raised. A large committee on which there would be a member from each important contributing source, as was formerly proposed, is patently good, but to do the actual work of getting the project in operation an executive committee of three is large enough. Let matters of general policy be approved by the committee of the whole by mail and the specific arrangements executed by this smaller committee.

There is only one organization upon whom we can rely for the raising of this money and the securing thereby of this greatly needed advertising campaign. This is the American Honey Producers' League, now officered with capable men. May we hear from them?

Use Honey at Christmas, They Urge

By Virginia Caldwell

"When the matter of Christmas gifts is considered, many think of clothing, jewelry and department stores," began the advertising of a seed store in Harrisburg, Pennsylvania.

And then it suggested, among other articles, books on beekeeping and articles for the beekeeper as gifts.

Each year it seem to me that, as the holidays approach, more and more household experts for the big daily papers and the syndicates print more and more recipes calling for the use of honey.

I have an idea they would print still more if given a little urging and cooperation, probably by wives of beekeepers who know something about honey. One newspaper that I worked for received quite a number of letters from women subscribers, addressed to the household experts whose name appeared over the daily column. We forwarded them to the headquarters of the syndicate and in nearly every case the information sent in—or that was asked for—was printed.

"The doughnut crock must be well filled at this holiday time," wrote Mary Hamilton Talbot in the Youngstown, Ohio, *Vindicator*. "Those made of honey may be cooked some days in advance of Christmas and will keep perfectly soft, which the sugar ones will not do." And she gave a

recipe. She also gave a recipe for honey cake.

The Dayton, Ohio, *News* conducted a prize contest for candy recipes among its women readers. The second prize was won by the woman suggesting fruit balls, the recipe for which was:

"One-half cup of strained honey, one-half cup each of cocoanut and chopped meats of any kind, one cup of seeded raisins, figs and dates chopped fine.

"Mix nuts and fruit and stir into the honey until stiff enough to mold into balls. Make balls size of hickory nuts, roll in cocoanut and then in powdered sugar."

The keeping qualities of cakes or doughnuts made with honey is a good point to stress, as many people are not aware of that, although they do know that fruit cakes are not perishable. Henrici's restaurant, in Chicago, which does a big volume of business selling high-class pastry, advertises: . . . "Honey cakes, intended for the holidays, may be taken home today, as, without special care or attention, they would keep in perfect condition for many months."

The San Diego, California, *Sun* conducts a large department, "Leslie Ray's Original Cookery." For the holidays it had some recipes by famous chefs. These were led off by "Delicious Cake," by Grolimund, of Seattle:

"Use two pounds of honey, two of

sugar, four of flour, two of finely diced almonds, or, better still, ground ones, one-half pound finely diced citron, one-half pound finely diced crystallized orange peel, one-half quart water, one-fourth ounce of cinnamon, cloves and nutmeg, two finely chopped lemon rinds, any desired flavoring, and one-half ounce of almonds which have been finely powdered. Mix by first heating the honey and water, then blend with the other ingredients, forming into firm dough, then roll out in sheets about one-eighth inch thick, place on well-greased pans and bake until well done. Ice to suit your taste and cut in oblong pieces."

"Ho! for the Holiday Cookie Jar," was the title of an article run by the *Detroit Free Press*, which led off with a recipe in which honey was used. "Make Them in Quantities; Keep Them for Weeks," was the significant sub-title.

Mrs. Anna B. Scott, of the *Philadelphia Inquirer*, supplied a recipe for "Honey Jumbles" when she urged that the cookie jar be well filled for the holidays.

A recipe for "plain caramels" in which honey was used, comb and all, was recommended to readers of the *Toledo Blade*.

These few examples will serve to remind honey producers that suggestions to the housewives that they use honey for the holiday festivities are plentiful. But the women have so much on their hands and minds at that time that the season often passes without the good intentions being put into effect. The grocery stores are busy places and the grocer is not likely to push the line. This is where the honey producer who has local outlets has an advantage. He can visit the stores handling his product and persuade the merchant to let him make a display. The merchant is more liable to consent if all the details are taken off his hands, because his thoughts are largely taken up with the things that run into heavy volume.

Jars of honey make especially nice gifts for needy families; they go well with Goodfellow baskets of food. Last year the Y. M. C. A. in Chicago, preliminary to a Christmas party for one hundred needy families, broadcasted as a part of regular devotional service an appeal for jars of jelly and canned fruit. They got responses from eight states, and in the nearly two thousand jars received there was a pleasing quantity of honey.

There are many opportunities for making honey play a more prominent part at Christmas time. The amount consumed then is not the main thing; it is educating more people to eat more honey.

Government Color Grading

The following statement is made by the Laboratory of Bee Culture Investigations to correct a misunderstanding:

In the early stages of the work on honey grading it was announced that samples of honey would be graded as to color, free of charge, by the offices of the Bureau of Agricultural Economics and by the Division of Bee Culture Investigations. Now that the United States standards for honeys have been adopted, making it possible for full inspection service on honey to be given, the Bureau of Agricultural Economics can no longer make these color gradings free of charge, but must charge for them at the regular hourly rate. This seems to be the only way to prevent the offices from having more of such work than can be done with the forces available for such duties. The following offices of the inspection service of the Bureau of Agricultural Economics are therefore making charges at the rate of \$2.00 per hour, either for full inspection service or for color grading of samples.

Room 2, Ferry Building, San Francisco, Calif.

Room 206, Wholesale Terminal Building, Los Angeles, Calif.

Room 902, 53 Park Place, New York City, N. Y.

Division of Fruits and Vegetables, Bureau of Agricultural Economics, Department of Agriculture, Washington, D. C.

Beekeepers desiring to have samples graded for color should take notice that the cost of grading a sample can be much reduced by having the sample in proper condition to be graded. That is, the sample should be in a wide-mouthed bottle and should be liquid. Samples in granulated form or in narrow-mouthed bottles require considerable time to put into proper condition and to remove from the bottle and place in the trough of the grader, necessitating a charge for all the time consumed. With a properly prepared sample, the time consumed in grading for color and making the records should not exceed one-half hour.

The Laboratory of Bee Culture Investigations, Bureau of Entomology, Department of Agriculture, Washington, D. C., will, for the present, however, continue to make determinations of the color grade of samples of extracted honey free of charge. Samples, should, however, be in liquid form and in wide-mouthed bottles, as stated above.

It should be noted that a number of the state universities are being equipped with honey graders and will make color determinations free

of charge for citizens of the states concerned. Anyone desiring to have a sample of honey graded as to color should communicate with his state specialist in apiculture, or with such other person as may be in charge of the work, for information as to whether this color grading service is available for his state. This will distribute the burden of grading and perhaps make possible the continuance of color grading without charge by the Bee Culture Laboratory.

A recent letter from a firm of honey exporters contains the following interesting statement:

"We appreciate, very much, indeed, the work the U. S. Department of Agriculture has done in inaugurating uniform methods for grading honey, because heretofore you never knew what you received when you bought a certain quantity of honey; the opinions as regards color differed too much. We are now buying honey from the producers on basis of Department of Agriculture certificate final, and we are trying to make our European customers agree to the same terms."

Death of J. H. Paarmann

Word has only recently reached this office of the death of J. H. Paarmann, of Davenport, Iowa. Mr. Paarmann was curator of the public museum there and very well known to the people of Davenport and vicinity.

He was an enthusiastic sideline beekeeper and at one time vice-president of the Iowa Beekeepers' Association. Paarmann made a series



of lantern slides, showing the honey plants of the Middle West, with the assistance of Miss Sheldon, a member of his staff. These were from photographs accurately colored and were highly praised by all who saw them.

Our friend died after an illness extending over several months, with severe suffering. Last January he submitted to an operation for stomach trouble and appeared to make a good recovery. For a time he improved greatly and seemed quite like his former self. As spring advanced, his trouble returned with increasing severity and a second operation was resorted to in an effort to relieve him. The incision disclosed the fact that cancer had developed and the case was hopeless. He lingered for several weeks before passing on. His last days were cheered by the fact that his bees were storing honey at an unusual rate, the crop being the best for several years.

Mr. Paarmann found interest in many things. He enjoyed gardening and beekeeping, was an accomplished musician and lately had built a loom for the weaving of rugs.

He gave much time to talks on bees, and birds, to schools, scout troops, etc. His was a life of devotion to the cause of science and service.

Bee Hiving Law

The Grant County Beekeepers' Association, through its secretary, Wilburn Sheron, has issued a statement to the Chronicle relative to the unprecedented swarming of bees this year. Many swarms are being caught by persons unfamiliar with bees and the apiary laws of the state. The association wishes to call attention to the fact that the law requires all bees to be kept in hives with movable frames so they can be easily and quickly inspected. Bees kept in barrels, boxes and such makeshifts will be condemned by the inspector, and will be disposed of at the owner's expense if he does not proceed to put them in movable frame hives. Indiana.

North Dakota Entomology Department Grading Honey For Beekeepers

The Department of Entomology of the North Dakota Agricultural College, Fargo, is grading honey for the beekeepers, following the new grades established by the United States Department of Agriculture. Samples are coming in rapidly and are mostly of high grade. The interest shown is very satisfactory and it is hoped that the service will do a great deal to help the marketing situation.



Established by Samuel Wagner in 1861

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Maurice G. Dadant, Business Manager

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Cellar Wintering

Some time in November is the proper time to put the bees in the cellar. We usually wait for a cold spell after fairly warm days. They are easier to carry about when they are shrinking from the cold than when they are still scattered about the hive. We never take in the cap, and we have often put in colonies with no bottom board, but with only the straw mat between one colony and the next one. We want them to have plenty of ventilation, so that the combs will not become mouldy. Usually the hive next to the floor of the cellar has more mouldy combs than those above it in the pile, so we generally place some joists, raised about a foot from the floor, and put the first hive, on its bottom, on top of the joists. Five hives may be piled on top of each other. But it is just as practical and perhaps a little better to use an empty hive at the bottom of the pile, instead of the joists. Then each pile is independent of the next and the bees of one pile are not disturbed when another pile is moved or handled.

It is a good plan, when two men can work at putting the bees in the cellar, to use a "hand-barrow" capable of carrying two hives. The hand-barrow is just a light framework of about the right size to carry two hives, with handles sticking out at both ends. The hives are carried on this more easily than singly and with less jars.

We leave the covers at the apiary, with the number of the colony marked on each, so that we may return them to the same spot in spring.

The hives, being in rows, separated by a passageway, have their entrances towards that passageway, so that the beekeeper, walking along with a dim lantern, can ascertain whether they are quiet.

The temperature we have always found to be best at from 42 to 48 degrees. Charles Dadant, when he was living, made the rounds of the cellar at least once a week. He held that one should ascertain the degree at which the bees were quietest, then keep the cellar at that degree by the use of more or less ventilation, as needed. The noise made by a hundred colonies or more, in a cellar, may best be compared to the low rumble of the waves on the seashore when one is a mile or so away from it. It is a quiet, peaceful hum. The French call it "bruissement."

The scientists have informed us that the "critical temperature" at which the bees cease to scatter about the hive, but form into a compact mass, is 57 degrees F. (14 C.). So it seems that it would be best to keep the colonies in the cellar at about that degree. But it is evident that this is too high, for the thermometer, which is kept at a proper height to be examined easily each time. We must figure that the hive itself protects the bees some and that the interior of the hive is bound to be at a higher degree than the air in the cellar. Whatever be the cause, a little experience will readily teach everyone that the air of the cellar must be below 50.

Dozens of practical beekeepers with cellar experience have agreed with us in this.

At our latitude on the Mississippi River plains, the greatest difficulty is to keep the cellar temperature low enough so that the bees will not be restless. It is easy enough to do so in very cold weather, but the trouble comes if we have a number of warm days in the middle of winter. We tried taking the bees out and putting them in again, but they start breeding and real trouble begins. I remember hearing an Ontario beekeeper say that it was good for them to breed early in the cellar, but I have never been able to decide that this was a good thing, for they are always restless when they breed, since they need water and will try to seek it.

Some beekeepers imagine that they must be confined to the hive, so that none may get lost. But those that try to emerge from the hive in the cellar are restless bees which cannot be confined without some disturbance to the rest. Better let them drop to the floor. Their number is small, always.

Our Own Apiaries

We are not in the habit of mentioning our honey production in the Journal. But this has been one of the best years, though not the best, and we believe we can encourage the beginners by mentioning what we have done this season.

The spring of this year was bad. Although we had mostly young queens, sixty-five colonies started queen-cells, seemingly in preparation for swarming from May 20 to June 1, evidently as supersedure cells, for we had only sixteen swarms, as far as we could tell from the actual catching of the swarms or from the depleted appearance of the colony. Nine swarms out of this number were hived. Total number of colonies at the beginning of the season, 375. We increased to 450 colonies, by twenty-five divisions and swarms and fifty packages from the South. Sixty-two colonies were requeened. As the spring was bad, we had to feed twice, in May, though some yards were fed only once.

The honey crop was 153 barrels, 89,375 pounds, or about 210 pounds per colony, spring count, including the packages from the South as spring count.

Our banner crop, in 1916, was 237 pounds per colony. We have so few swarms that we have long ago discontinued watching closely for them. Our bees are in seven different apiaries. In the sixty odd years during which we have kept bees here, we have figured on an average crop of fifty pounds per colony, but a few years like the one just past would raise the average notably.

New Thoughts In Beekeeping

We do not often criticize other publishers of bee magazines, but we now think it advisable to mention a criticism which we find on page 322 of the "Beekeepers' Item," published at San Antonio by our good friend LeSturgeon. He writes:

"It often amuses us the way the older publications shrink from printing anything that seems to be a new thought in beekeeping."

After friend LeSturgeon has been an editor for a few more years, he will learn that it is not all "velvet" to print every new thought or new discovery. For in-

stance, a few years ago a scientific man of Missouri made the assertion that American foulbrood was harmless. We did not publish this **new thought**, and we did well, for not so very long ago we found that the party in question had become convinced of his mistake.

Just lately a European savant published the assertion that propolis is obtained by the bees by digesting pollen. This has been spread over a number of magazines. This man writes that he has never seen bees carry in any propolis, so he is sure of his theory. We are sure he is mistaken, so did not publish his discovery.

But we do publish new things. For instance, we have lately published (July, 1924,) Dr. Brunnich's statement that bees evaporate honey within their stomach and separate in some way the sweet from the water, which is thrown off at once. He is positive of the correctness of his theory, but others are doubting it, and we have lately published an article on "How Bees Concentrate Nectar," by Dr. O. W. Park.

If the "older publications" published every new thought, there would not be anything left for the "younger ones." Let us all do the best we can and there will be room for all.

Windbreaks For Winter

If you do not pack your colonies for winter, and even if you do, you will find windbreaks very useful.

We have tried bees with all sorts of exposures for their hive entrance, even north. This was not done purposely, but in two cases we bought bees from beekeepers whose hives were facing north and we know, positively, that we do not want that exposure for our colonies. When the weather gets mild, in the middle of winter, and the bees have a chance to take a cleansing flight, they can do so nicely if their entrances face south, southeast, or southwest. But when they face north, there are many chances for them either to hesitate in going out or to be chilled in returning.

Windbreaks are good in any case. In the entire Mississippi Valley the winter storms blow mainly from the north, northwest, or northeast. The piercing winds are felt by the colonies, even in double-walled hives, if there are no windbreaks.

A row of evergreens, branching low, a tight board fence, even a row of corn fodder is useful.

May I repeat the method of Mr. Tissot, of Ottawa, Canada, who harvests such fine crops with the deep, large hive? Mr. Tissot is a detective in the employ of the Canadian government and does not have much leisure. His hives are all in double-wall bodies in a small yard, about five miles from his home. When winter comes, he erects a tight board fence around the apiary. The snow comes and covers the hives, four feet deep. He does not find it necessary to disturb the bees from November till April. But they must have plenty of healthful food. He always complements the stores of honey with some sugar syrup. See January, 1925, *American Bee Journal*.

Use a windbreak on the north of your hives if possible.

Comb Foundation of Pure Versus Mixed Honey

Referring to our editorial on page 513 of October, we have received some comments from the editor of the magazine "France Apicole." In a private letter, he not only agrees with our criticisms, but asserts that he has tried different waxes and that, as might be expected, none fills the requirements of the hive as does the product of the bee. This is rational, for beeswax possesses the ductility necessary to make it easily manipulated at the usual temperature of the hive in summer, while it retains the firmness which permits it to carry comparatively enormous loads of honey, in such frail structures as the

combs. When we try to find the most serviceable material for the purpose, we must positively return to the natural product.

This is aside from the fact that the use of artificial waxes is bound, sooner or later, to prove troublesome in the providing of pure beeswax for the needs of commerce. Our interest as beekeepers is very evident from both points of view. Let us keep our beeswax pure.

Artificial Honey

The same editor also mentions to us the question of "artificial comb honey," the old story revived from some fifty years ago (see also page 513, *American Bee Journal*), and tells us that the first mention of this new episode was inserted in the French magazine "L'Epicier" (The Grocer), which in good faith mentioned the supposed manufacture, in America, in Boston, of an artificial comb honey, sold as clover honey.

But here is another example of manufacture, this time from Germany, of "kunstthong," made in the Saar, by mixing honey with glucose and a proportion of apple juice. Luckily this is forbidden by the laws of Germany as well as by those of the United States, and the product has to be sold as "sweets."

Wintering Surplus Queens

We have never had very good success in wintering queens in cages, two or more in a hive. "The Beekeeper," of Ontario, advises to place weak colonies, two in one hive, by using a tight-fitting division board and giving them separate entrances. This will probably do where bees are wintered in the cellar. It saves the queens and the colonies both, if the food is good. Sometimes such small colonies, with good queens, do wonderfully well in spring. They may be helped with bees purchased from the South, in early spring.

As a rule, however, if we have supernumerary queens, we find it practical to introduce them into hives that have old queens, by destroying the latter and introducing the new queen, for the keeping of a queen in a cage in a queenright colony is not desirable, although it may be achieved.

Queens may now be secured so early from the South that it is hardly advisable for a beekeeper in the North to put himself out much in order to save extra queens.

Selling Honey

Your honey will sell readily if you do not have neighbor beekeepers who harvest small crops and hasten them into the groceries, at any price that they may be offered. We keep preaching against this practice, but the bee owners who follow it do not take a bee magazine, although it would pay them to do it, even if only to find out the current prices.

As a rule the farmer is accustomed to accept the prices quoted by grocers, for eggs, butter, chickens, etc. But since there is so little honey produced there is no competition in the prices paid by purchasers, except where beekeepers who are posted set the price. The grocer is therefore at liberty to put his own price upon the goods.

Hardening Honey

One of our subscribers in Wisconsin, Mr. L. Reynolds, asks whether experiments have ever been made towards hardening granulated honey till it became as hard and dry as sugar and could be handled like dry sugar. If anyone has ever done anything of this kind, we would like to hear it. We hardly think that it can be done successfully, for whenever you expose granulated honey to heat it melts to the liquid form again.

In manipulating honey, we must be careful not to injure its delicate flavor, secured from the blossoms. When we remove the essential oils, we lower honey to the level of manufactured sugars.

Delphos, a Beekeeping Center

By G. H. Cale

THERE is no more well developed beekeeping anywhere than that found in the counties of Van Wert, Allen, and Putnam, in northwestern Ohio, the home of the Tri-County Beekeepers' Association. I arrived in Delphos during the Delphos Street Fair, an annual event and a nice departure from the plan of holding the county fair at the usual fair-grounds. I am not particularly fond of the noise and hurly-burly of fairs, but there was something strikingly different about the Delphos Fair that can well be recommended to other communities.

The Tri-County Beekeepers' Association had a bee and honey exhibit that was most remarkable. I doubt whether any other county or group of counties in this country has ever attempted a more ambitious display. It was much better than many of the state fair exhibits.

The display was in a big tent at one end of the main street, and created a great deal of attention, as there was a wide variety of entries, the quality of the honey was all high and everything tastily arranged.

The Tri-County Association is one of the outstanding beekeepers' organizations. It was formed through the leadership of a few local beekeepers with the help of E. L. Sechrist, of the Office of Bee Culture at Washington, during the period of



Fred Leininger

the war. It has since grown rapidly, taking in all of the commercial beekeepers in the region, and now has a membership of thirty-three. It is safe to say that their total production of honey bulks larger than any other group in Ohio.

Characteristics of the Region

The soil in this part of Ohio is glacial, two of the later glaciers having passed over the ground, each adding its share to the fertility. It is therefore a relatively fresh lime soil, and legumes can be grown to advantage with no attention to acidity.

There is usually an early nectar flow from fruit and dandelion, and, in some years, the bees will store a small surplus from these sources. It gives brood rearing a wonderful boost and helps out those who face the need of spring feeding.

There is a heavy acreage of alsike clover, much of it grown for seed, and it has been found by the growers that the honeybee is an able pollinator, consequently they are anxious to have bees in easy access to their alsike fields.

Many sugar beets are grown and there are several sugar factories in the region. The beets rapidly deplete the soil, however, and it is necessary to keep up fertility with a soil-building legume. Sweet clover is popular for the purpose and adds much to the blessings of beekeeping.

White clover is abundant, and this year, in common with the rest of the white clover region, yielded a good harvest. In the fall, there is no dependable flow. In some places heartsease is more or less abundant, but nothing can be depended on at this time to furnish



Dr. Ernest Kohn



The Kohn honey house at Grover Hill



Farmer Kohn

honey for winter stores.

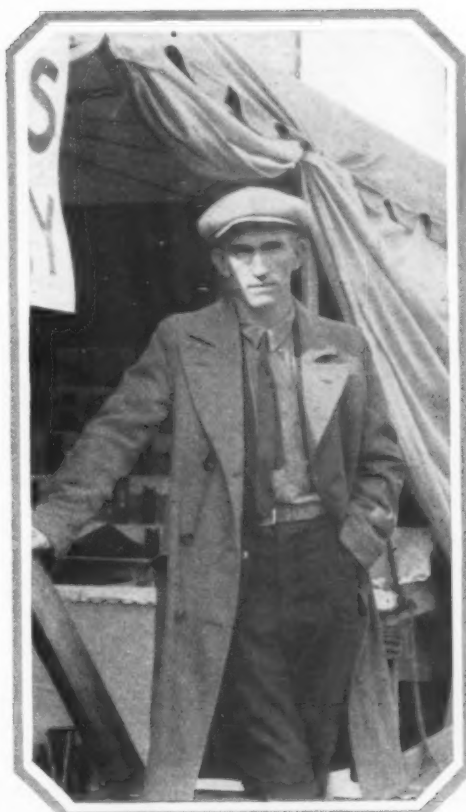
It has been said that the fundamentals of beekeeping are the same everywhere and that there is no such thing as "location." That is only true in a sense, as variations in honeyflows, in their length and rapidity, in climate and soil, do have a great influence on beekeeping practice. The lack of a fall flow to some beekeepers would be a disaster, as they have come to depend on it not only for surplus but for winter food and to stimulate fall breeding. When these conditions are not present it is necessary to adopt an entirely different practice to insure that the bees will be in proper condition for winter.

The system of beekeeping in this region is quite markedly uniform and there is nothing to distinguish it as unusual except that nearly all the beekeepers have apiaries that are above reproach. They keep them in the slickest possible shape, with an eye to producing the most honey in the easiest way.

I have never been where beekeepers show more respect for the silent law of location rights. While the territory seems to be well blanketed with bees, no one is treading on the other fellow's toes. They do not need more beekeepers and it seems that they do not need more efficient ones.

Upper center:
Walter Leininger
of Fred Leininger & Son

Center oval:
The Paulding yard of Leininger & Son, with two of their ladies, real beekeepers too.



Good farms, good homes, delightful communities are emphatic in the Delphos region. The beekeepers are therefore blessed with the best of environments, a good marketing situation, and fine support in the farm practice which is marked in the growing of nectar producing legumes.

At Home With a Leader

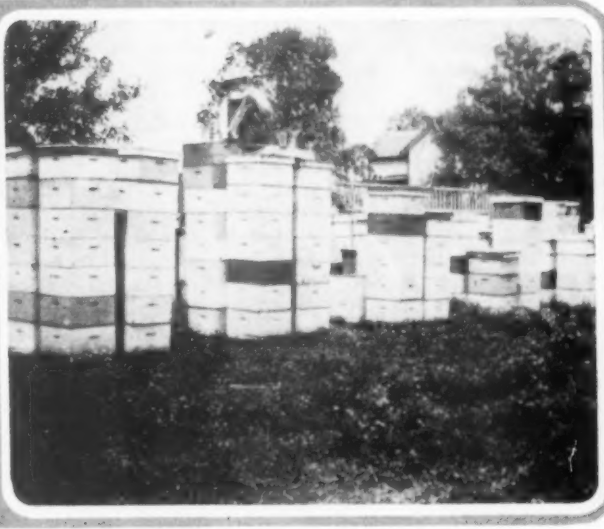
One cannot help paying a tribute to the human interest and gentlemanly uplift of Fred Leininger, who is not only a successful honey producer but also one of the best of our queen breeders. Fred has talked bees to his friends until a great many of them have entered the ranks of beekeeping, former merchants and business men in and about the town of Delphos.

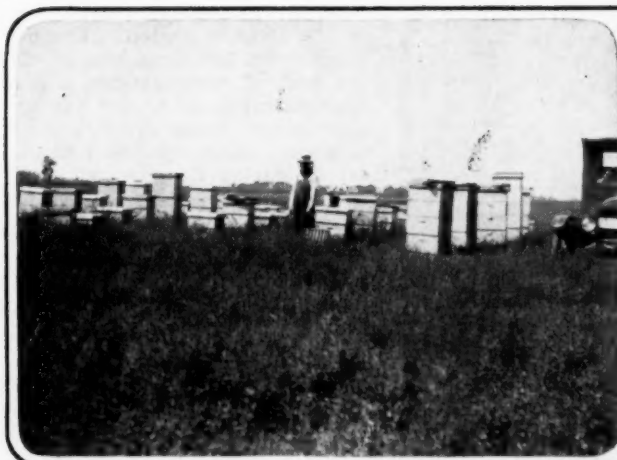
With Fred is a son, Walter, who shares his father's success and is also well liked. At Fort Jenkins is John Leininger, a brother, who entered beekeeping with Fred many years ago and who has also been very successful. He now has only two hundred colonies, but his enthusiasm still continues. The picture of John Leininger's home shows what the bees have done for him.

Both of the Leiningers are leaders in their community life. It is wonderful to see members of our profession looking up to the higher ideals of human relation-

Lower left:
Home yard of the Leiningers at Delphos. Queen-rearing is also carried on here.

Lower right:
The Engle yard. It nearly took a ladder to get to the tops.





Outyard of Irvin Stoller,
Latty, Ohio



Winson yard of Dr. Ernest
Kohn & Son

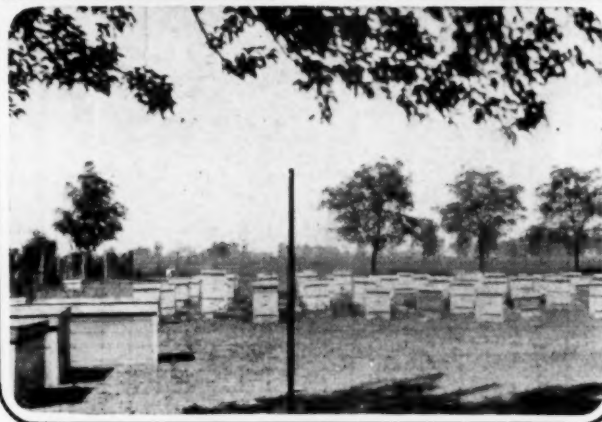
ships. Fred is interested in the Boy Scouts, the Girl Scouts, and all the organized social life of his city. His popularity is apparent in the uninterrupted greeting which is always his as he travels the streets of Delphos.

The Leiningers began their active beekeeping at an early age. Fred was fourteen when he fully decided to be a beekeeper. He and his brother John took the first comb honey to Delphos years ago in a spring wagon.

Fred and his son, Walter, live in Delphos, with homes side by side. In winter they often go to Florida, returning in time for the spring work in the yards. The honey house is back of the dwellings and is well equipped with power machinery and everything arranged to do the work quickly and well.

I should remark, in passing, that every member of the Leininger household helps with the bee work. They are all efficient, but none more so than Mrs. Leininger. She is the swiftest uncapper I have ever seen. It fairly takes one's breath away to watch her. She is not allowed even to lift a frame from a super, but everything is close to her speedy knife.

Fred Leininger & Son have ten apiaries with more than 700 colonies. In off years they devote more of their time to queen-rearing to offset the poor honeyflow. But they neglect neither part of the business. Both the honey production and the queen-rearing are carried on in a very efficient manner. The apiaries are widely distributed in Allen, Putnam, Van Wert, Mercer, and Auglaize counties.



Home yard of Irvin Stoller

Fred Leininger's tribute to the queenbee is fetching. He describes her as "the fountain of youth, restoring the youth of the colony every seven weeks, not only adding new members but also new life and vigor."

"I have seen good colonies with tiny queens, but one cannot count on them. I like to see them walking about the comb in a queenly way, laying in each cell as they go. Queens that scatter their eggs and skip about may be all right, but I do not like them. The queen that produces even brood is the best one."

He uses the Doolittle method of queen-rearing, dipping his wax cell cups in quantities and fastening them to bars of wood placed in ordinary frames. He grafts directly into the cells, without using royal jelly, placing the cells in starting colonies of queenless bees. The young nurse bees are plentifully supplied with food, so they are ready to accept the cells. As soon as they are well started, they are put above queen excluders in finishing colonies, from where they are distributed to mating hives when ripe.

In requeening his apiaries Mr. Leininger often uses queen-cells raised in this manner, distributing them to colonies to be requeened, a

few hours before the virgins are to emerge. The virgins are readily accepted and the bees do not destroy these very ripe cells. In a period of ten days or two weeks the virgins will be mated and laying.

A Trip Around

In company with R. J. Porter, Deputy Inspector of Apiaries and a member of the Tri-County Association, I spent a delightful day visiting beekeepers in their apiaries, always the best way to get close to their affairs.

Most of them produce extracted honey entirely, but some are also skillful comb honey men and some of the nicest comb honey I have ever seen was tiered up in generous amounts in the honey house of Irvin Stoller, at Latty. Stoller is a splendid beekeeper, following the same system accepted by practically all those in the Tri-County territory.

The thing that impressed me most about Stoller's outfit was the neatness of the apiaries and of the honey house. We all agree that painted hives look better than those which show weathering. However, some of us treasure the belief without making use of it. Stoller puts it into practice. His hives are painted grey in recent brilliancy. They are a delight.

The leadership which is in evidence around Delphos has crystallized the beekeeping practice for nearly all the beekeepers. The ten-frame double-hive body system predominates. The quadruple winter case is found everywhere. They are constructed in various ways, but the most simple is that used by Fred

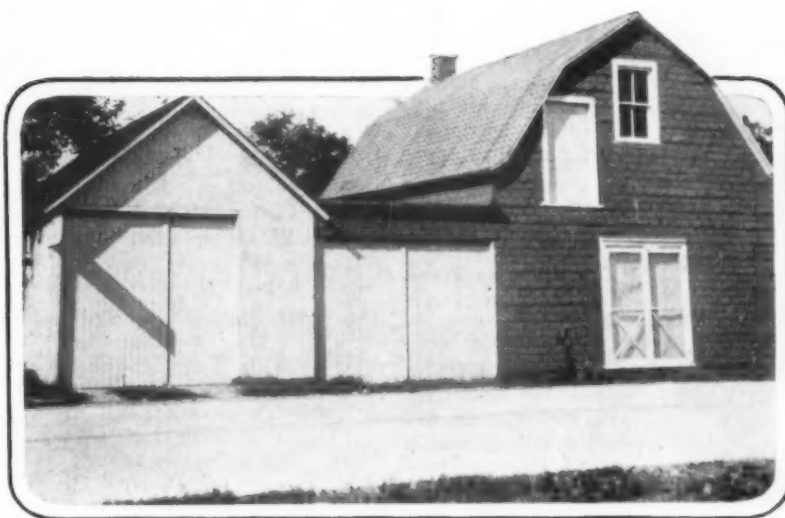
Leininger. His cases are built of thin and inexpensive lumber, strongly put together. The colonies are kept in groups of four on stands large enough to serve as winter case bottoms. The hives are set at the corners for summer and grouped in the center for packing in the fall. The cases are piled at one side of the apiary when not in use, with packing material inside. Bees are packed in October and unpacked in April.

Dr. Kohn & Son, Grover Hill

A genial and pleasant host is Dr. Kohn, at Grover Hill, Ohio. He and his son, Farmer, have built up a large honey and beekeeping business. Dr. Kohn reminds me very much of Scattergood Baines, the lovable character created by the literary genius of Clarence Buddington Kelland. He radiates friendliness and helpfulness just as the beloved Scattergood. He even takes his shoes off at night like Scattergood.

Dr. Kohn breaks from tradition and is never ready to say that the going way is the right way. He particularly characterizes the beekeeping around Delphos because his way is different. Some criticize him as an experimenter, but he gets more fun out of life.

The Kohns were one of the earliest to see the value of package bees and, for several years, they purchased package bees each spring. They found that the production of honey from them compared very favorably with that from over-wintered colonies. In 1925 they decided to establish bees in the South to raise their own packages to ship to their northern apiaries. The saving in honey usually consumed in winter, the depreciation in equipment, the saving in the labor of packing and unpack-



Honey house of J. H. Allemeier, Delphos



R. J. Porter, Deputy Inspector

ing, the elimination of winter loss and spring feeding would more than pay for the packages. After trying this, they now believe that packages

can be bought from reliable southern breeders more cheaply than they can produce their own.

For one or two winters they tried killing all their northern bees and replacing them with packages in the spring. Colonies were worked in sets of two. The latter part of June one colony of each set was dequeened and the two colonies united. In July the remaining queens were removed and the bees later suffocated with sulphur.

Two-pound packages were dated to arrive April 10-20, followed later with two pounds for each colony without queens. The bees were put into the hives set aside the fall before and built up for the honeyflow.

They have finally decided to discontinue this plan, as it is too expensive and too uncertain. They now plan to winter their bees as well as they can in the North and only purchase packages to replace those that are lost in winter or to strengthen the weak colonies.

The Kohns have purchased a brick building in town, away from the bees, for a honey house, where honey can be handled and extracting done with freedom. This scheme is rapidly coming into favor where the central extracting plant is feasible. Good roads, rapid transportation, and motor vehicles may soon make outyard extracting a thing of the past.

The Kohn house is spacious and well equipped to take care of the production of a large number of bees. One of its interesting features is an overhead rail with chain and pulley, so that cases of honey can be carried the length of the building and piled or taken through the door into trucks for shipment. There is the usual complement of power extractors, and tanks and machinery which makes the modern honey house look like a factory.



Home of John Leininger, Ft. Jenkins

Dr. Kohn also has a honey warehouse of cement blocks. His medical office is in the front of the same building. Numerous cases of honey, both comb and extracted, fill the rooms, for the Kohns have developed a large honey trade, handling not

only their own production but that of many of their neighboring beekeepers. Their methods are businesslike and they are finding it profitable to pay attention to the selling end of beekeeping, which is so different from the job of producing honey.

Outdoor Wintering

By Frank C. Pellett

So much space has been given to the subject of the wintering of bees that it is hard to find anything new. However, the current teachings so often fall short in practice as to prove that there is still something to be learned.

For several years the so-called government case was recommended as the "sure fire" method of successful outdoor wintering. It was stated that there was no danger of too much packing, the more the better. Along with the heavy packing on all sides, as well as top and bottom, young queens and good stores were advised. We now learn that the young queens with large clusters of young bees and plenty of good stores are the important things and that packing is incidental.

Several years of personal experience in wintering bees outside with various kinds of packing, as well as observation of the methods of others in widely different localities, have convinced me that **there is no one best method of wintering** under all conditions. Generally the beekeepers who have been long established in a region will be found to practice the method which is best for their conditions.

During recent months I have visited several beekeepers in the region west of the Missouri, and all with whom I discussed the matter agreed that their bees wintered better without much packing. Next to clusters of young bees and good stores, a good windbreak is the most important consideration in successful wintering. With a good windbreak and good stores it is possible to winter even weak colonies successfully outside in the ordinary winter.

In the October Gleanings, Bruce Lineburg tells of his experience in southeastern Ohio with bees heavily packed in winter cases. In the spring some colonies were dead and the others in very bad condition. This is in line with an experience of my own at Atlantic, Iowa. I packed different lots of bees in cases with packing all the way from two to ten inches. Those packed heaviest died before spring, with plenty of honey in the hives. Those with lighter packing came through in good condition. Weak colonies in double-walled hives came through all right.

The explanation seemed simple enough. The weather was very severe, with long continued cold spells. During the few brief periods of moderate weather all the bees with light packing had a cleansing flight. Those in the heavily packed cases did not get it and died as a result.

We know that where beekeepers go to the trouble of removing all honey from the combs and feeding sugar syrup, the bees are able to survive long periods of cold in the packing cases without a flight. In localities where there is no late flow this may be a practical thing to do. There is a vast expanse of country, however, where the flow continues until cold weather. To remove the honey at that late period and feed sugar syrup would be well nigh impossible. In such locations there certainly is such a thing as too much packing, for the bees must take advantage of every opportunity to get a cleansing flight, and in the heavily packed hives they do not get it.

Not only does my personal experience agree with that of Mr. Lineburg, but many other beekeepers with whom I have visited tell the same story. Evidently the quality of the stores is an extremely important factor. The better the stores, the longer the bees can go without a flight and take no harm. In localities where there is no fall flow and stores are of uniformly good quality we find beekeepers using the heavy packing with satisfactory results. Those who advocate the heavy packing tell us to feed sugar syrup to replace poor stores. Such advice sounds good to one who has not had the experience of seeing his bees work into November on asters, until the weather turned suddenly cold, with no time left to extract the honey and feed the syrup.

This brings us back to the statement made at the beginning: "There is no one best method for all conditions." The man who has no fall flow and who can provide best quality stores, or who can feed sugar syrup, will do well to winter in packing cases, with large amounts of insulation. The man whose stores are not of the best and whose bees can find an occasional opportunity for a cleansing flight will do better to use

only a moderate amount of packing. In either case a good windbreak is essential.

As to results, if stores are poor, winter losses are likely to be heavy in severe winters. They are heavier where the bees are given excessive amounts of packing than when a less amount is used.

C. P. Dadant has well said, "wintering is a local problem."

Sweet Clover In North Dakota

Since sweet clover is the important honey plant of North Dakota, figures concerning the acreage of the different varieties will be of interest. The common white, early Grundy, and yellow, each predominate in some locations, but the closest figures on actual amounts for the whole state are sent us by the College of Agriculture, at Fargo. Their figures follow:

"According to an estimate by Dean H. L. Walster, agronomist of the college, who is regarded as a sweet clover authority for North Dakota, and W. L. Crites, commercial beekeeper and sweet clover seed buyer, and myself, the following were the percentages of the various sweet clovers in the state:

"Grundy County, 25 per cent or less.

"Yellow sweet clover, approximately 5 per cent.

"Ordinary white sweet clover, 70 per cent." J. A. Munro.

New Bulletin On Wintering

A bulletin entitled "Wintering Bees in Iowa," by Prof. F. B. Paddock, has recently been issued by the Iowa State College of Agriculture Extension Service.

It contains eight pages, in which are outlined the essentials of successful wintering with the recognized methods of management under Iowa conditions.

The bulletin stresses plenty of young bees, good stores of ample quantity and good quality, with suitable protection. Copies of the bulletin can be secured by addressing the State Apiarist, Ames, Iowa.

Lundie Is Busy

According to the monthly newsletter of the United States Department of Agriculture, five and one-half times the amount of beekeeping equipment was sold in South Africa in 1926 as in 1923. It is assumed that some of this increase is to be credited to the efforts of Dr. A. E. Lundie, Apiculturist of the Union of South Africa. Dr. Lundie spent some time in this country and those who knew him here will be glad to hear of the progress in South Africa.

Application of Electric Heating to the Honeybee Colony

By Frederick B. Simpson

UPON resuming experimental beekeeping last year, after some years without bees, the writer was agreeably surprised to notice the apparent harmony between the nature of the bee cluster and the characteristics of electrical resistance units.

Some twenty years ago the writer devised a system for research, relating to certain races of bees, when kept in the equivalent of sheds or house apiaries in his locality, in which -25°F. (-32°C.) is usually reached during the winter, and frost on the Fourth of July is hardly unexpected.

Earliest experiments in electric heating were by means of resistance wire on asbestos sheets within a wire screened dummy replacing one brood frame. Enamelled copper wire, embedded in the foundation, in place of the usual tinned iron or steel, furnished another method. A third consisted of the replacement of the asbestos sheets by a pair of vitrified resistance units. Space forbids detailing all the causes of these early failures, but a sufficient cause was in the attempt to heat the hive instead of the cluster. Another contributing cause was the fact that the classic researches of recent years were not then available.

The purposes of electric heating and the results to be expected appear to be about as follows:

1. Protection of the winter cluster from devitalizing effects of extreme cold and conservation of the energy of the younger bees, in particular, without premature brood rearing.
2. The stimulation of brood rearing in spring and at any desired periods under control of the apiarist with economy of egg laying due to diminished contraction of the brooding cluster by reason of less sensitivity to external changes of temperature.
3. The possible economic use of heat in aiding the evaporation of moisture from nectar, and in its ripening during the chillier periods of the honeyflow.
4. By far the most promising immediate value in this application is to be found in its use as a differential control in the extension of researches in wintering, brood rearing, humidity, ventilation, thermometry, calorimetry, basal metabolism and other associated bee problems.
5. Through light thrown on the foregoing problems, electric heat may be found of practical use in adding to "bee welfare" by raising the "standard of living" and consequently greater immunity to disease. The abolition of the too dense cluster may also be found to reduce the devitalizing effect as well as the

excitability and restlessness which may be caused by vitiated and deficient food and air in extreme cold.

The essence of applied electric heat is:

The added heat must be so applied that to the bees it shall be accepted as equivalent to the effect of added bees.

It follows that the quantity of heat must be limited to such a fraction of the total available heat of the cluster that the "automatic" thermostatic control by the bees themselves, will be normally continued without appreciable interference due to the added heat. Economic considerations, in conjunction with the foregoing, point to the necessity of the heat being applied within the cluster.

The data of electrical and heating engineering can give us but little aid in estimating just what minute amount of energy is needed in the very unusual heterogeneous environment of the bee cluster. Such data, however, becomes of such use as to be indispensable in computing the absolute temperatures or intensities allowable under the different conditions of the bee cycle.

The properties of electric resistance units are such as to cause the energy received from the electric circuit to be dissipated in the form of heat, causing a definite rise in temperature of the wire, its support and surroundings, which will vary in intensity according to the slowness or rapidity of cooling.

The mobile portion of the bee cluster is essentially a mixture of bees and air, and its expansion and contraction determines the relative proportion of each as well as the ratio between the more intense heating rate by conduction, in direct contact with the unit, and the lesser rate by convection in which the cooler bees and air are brought successively in contact with the unit, thus replacing those portions of the mass which have been raised in temperature, forming "convection currents" of bees or air, or both.

The last two paragraphs are intended to furnish a terse, though perhaps crude, illustration, and are not claimed to be rigorously precise.

From the writer's preliminary experiments, it appears practicable to design vitreous resistance units for minute amounts of current with relatively large surfaces for heat dissipation at low intensities, which can be permanently installed in the center frame of the hive and which will act as the equivalent of bees added to the cluster so far as heat is concerned, with the exception, of course,

that electricity rather than stores is consumed.

It is expected that when the proper constants have been determined the same units, with different external connections, can be used for a degree of heat higher than permitted in the winter cluster and useful for stimulating brood rearing or nectar ripening.

While strictly a laboratory problem for solution by experts, the installation is simple, comparatively inexpensive, without need of elaborate apparatus, and can be used on commercial lighting circuits or, for experiment, ignition storage batteries will suffice, provided the current is kept constant. The cost of the current needed is also well within reason and gives promise of eventual use, perhaps, in limited intensive apiaries which are situated somewhat like the writer's.

It is expected that full data with illustrations will be ready for publication in time to be available for this winter's researches.

New York.

Note: Through no fault of the writer, the late publication of this article will prevent the publication of his electrical data on the application of this method for use this winter. Anyone interested may, however, send their data, on source and type of current, number and location of hives, and any other necessary information, to the writer, and the necessary constants and suggested application will be given. Address Dr. Frederick B. Simpson, Cuba, New York.

Australia Endeavoring to Profit by New Zealand's Losses in Honey Exports

American Trade Commissioner Foster, Sydney, reports that Australian interests are endeavoring to organize an export agency similar to the New Zealand Honey Control Board, for the purpose of marketing their honey in the United Kingdom markets. Australia expects to profit from New Zealand's experiences and losses in their honey exporting venture.

It is proposed to establish a central depot at Sydney to which honey producers can forward their honey for grading, blending, etc., after which shipments of standard grades will be made to United Kingdom and other markets. By following such an arrangement, it is estimated that the price of Australian honey, f. o. b. Sydney, will be about 8 cents per pound, while New Zealand honey, f. o. b. shipping point, varies from 10 to 18 cents per pound.

Evaporation of Nectar by the Bees

By Charles Dadant

Translated from the Bulletin d'Apiculture, February, 1880, by Kent L. Pellett

IT is the Jesuit Father Babaz who was the first to emit the idea that the bees rid the nectar of a part of its superabundant water, by evacuating it during flight.

In a brochure published ten years ago, entitled "The Cave of the Beekeepers," and to which the title of "The Cave of the Bees" would have been more appropriate, since what he called the cave was none other than a feeder in the open air, he recounted that, having given his bees a kilogram of brown sugar diluted in four litres of water, he noticed that, in the trips from the feeder to the hive and from the hive to the feeder, they let fall a part of the absorbed liquid.

I quote from it:

"That which I did not know, that which nobody knew either, is that, besides the ordinary evacuation, the bees have, still, to pour off the excess water of a nectar too aqueous, an evacuation purely liquid, which functions very often from the cave to the hive, sometimes **from the hive to the cave**, but always with much gracefulness. It is a truly curious spectacle to see them strain in the air this little shower, which evaporates often of itself, so light is it; but which most often sprays with a fine dew, with drops almost microscopic, the vegetables, the leaves of trees, the faces, the clothes of observers, without spotting, however, nor leaving the least trace, even in drying; which proves that it is only pure water that the bees have the secret of separating very promptly from all sugared element, to keep only that which is suitable for the honey.

"We have noticed the same fact here, when the nectar that the bees gather from the flowers is too watery; but I cannot admit that the bees can, in their first stomach, separate the water from the honey before disgorging it in the cells, as the Jesuit Babaz and Mr. de Rauschenfels have supposed. I believe that the liquid evacuated has gone through the second stomach, which, having digested the sugar, lets the water pass, of which the intestines hasten to rid themselves.

"The bee which works can live only a very short time if it is deprived of nourishment. Watch a bee trying to go through the windows of a room in which it has entered to hunt, without finding anything. It will scarcely stop until the end of its strength. Perhaps, after a moment of repose, it will recommence its efforts to leave; but this second trial

The different suggestions by scientific men, lately, on the methods employed by the bees to ripen the nectar have led to investigations, such as those by Dr. Park, in the October number. In this regard, we have thought well to publish the following extracts from the writings of Charles Dadant, published as early as 1880 and now translated by Kent L. Pellett.

will be short and it will stop exhausted, to no longer get up, unless you come to its rescue with a little honey or sugar water.

"When the bees come to the flour in the spring, they spend, to impregnate it and to roll it into pellets, a large part of the little honey that their first stomach contains. Then, if they commit the fault of continuing the work of gathering the flour, having their stomach empty, you see them incapable of taking flight. They die on the spot. Give them a drop of honey and you will reanimate them. In the two cases I have just cited, hunger and exhaustion are the causes of the death of the bees. This exhaustion proves, as I have advanced, that the bees digest quickly and have need of restoring themselves while they work. This need, not satisfied in the long trips that they make in the country in search of undiscoverable honey, when some cause excites them to leave in times of scarcity, explains their immense mortality, the enormous depopulation of the hives, when the flowers abound without giving honey. It explains also why, when they harvest a honey too watery, they evacuate a certain quantity of water. This nectar, introduced in their second stomach to restore their strength, contains too much water. This water cannot serve for alimentation; it uselessly fills the stomach and the intestines, which promptly rid themselves of it. I will remark, to substantiate my opinion, that Father Babaz saw his bees evacuate water in leaving the hive to return to the feeder. In order to admit that they employ this means to diminish the quantity of water that the nectar contains, it is necessary also to admit that the bees return to the feeder with their first stomach not empty, which is improbable.

"It is then more rational to believe that the bees let fall only the water of the honey that they digest, and that this evacuation becomes visible

when the nectar harvested contains so little sugar that it is necessary that these insects send into their second stomach a large quantity of it to obtain the sugar indispensable for the restoration of their strength.

"The evaporation of nectar takes place only in the hive. One could have the proof of it in comparing the density of the given nectar with that of the stored nectar. I do not doubt that they are identical, or very nearly so. Each one of us may notice that sometimes the honey newly deposited in the combs is so watery that the least inclination of the frame makes it flow out of the cells. It is by submitting it to a current of air that the bees evaporate it.

"I bought, in December, a natural swarm short of provisions, lodged in a box-hive. I made it pass the winter in the cellar, feeding it with sugar candy. In the spring I found myself possessor of another hive in which the bees had all died during the winter, leaving all their combs moldy and a quantity of honey not capped, which, swelled by the water that it had absorbed, overflowed the cells in rounded drops, so that the least jar made it flow. This honey, not capped and too watery, had caused the loss of the colony which was lodged there.

"I took out the combs of my swarm and made the bees pass into the damp hive. They immediately began a humming such as colonies make at the moment of the great harvest. Some bees placed themselves before the entrance to ventilate the hive; this colony alone made a noise, which lasted for three days. At the end of this time I visited the colony and found all in good order. The combs were dry, the honey that one saw at the bottom of the cells had become too thick to fall out, and the bees were in repose.

"It is, therefore, by submitting watery nectar to evaporation by a current of air that the bees obtain its thickening; and it is because they have to evaporate honey freshly gathered and too watery that we hear their humming during the nights which follow the days of harvest."

About Swarming

In the discussion of swarming at the Quebec International, Mr. W. J. Tawse, of MacDonald College, stated that he had noticed that a bad swarming year followed a bad season and that a non-swarming season follows a good year. This is interesting if true. Have other observers verified this statement?

Some Characteristics of the Caucasian Bee

By A. S. Mikhailoff, U. S. S. R., Tula, Apicultural Experiment Station

AS it may be judged from advertisements in the American Bee Journal and Gleanings in Bee Culture, many American beekeepers are much interested in Caucasian bees.

The best Russian expert in Caucasian bees is Mr. K. A. Gorbacheff, who lives in the town of Tiflis (see the applied roughly planned map of Caucasus), at the state silkworm culture station. I shall here describe the biological properties of the Caucasian bee according to K. A. Gorbacheff and some biometric properties according to my recent investigations.

It may be mentioned that Caucasus is divided with the great mountain ridge into two main parts—North Caucasus, which is situated northeast from the ridge, and Transcaucasus, southwest from the mountain chain. This last part is named in Russian Zakavkazie. The west part of North Caucasus is named Kooban.

There are two main sorts of the Caucasian bees. The typical bee for Caucasus is the mountain gray Caucasian bee from mountain localities as Alkasia, Swanetia, etc. We find at Caucasus also the second sort, the yellow Caucasian bee. She lives in North Caucasus (for example, at Kooban,) and in some southeastern parts of Transcaucasus, as the valley of the River Koor and near the towns Erivan, Ordoobat and Lenkoran. This yellow bee can be related, according to Gorbacheff, to the Persian bee. She has yellow or orange areas on the two or three bands of the abdomen counting from

the thorax. Especially yellow is the Lenkoran bee. The mountain gray Caucasian bee is extraordinarily peaceable, laborious, tolerant to the cold and rough wintering which she finds at high mountain localities. The bee of this gray race has also very prolific queens and swarms moderately. These bees fill the cells with honey very much before they cover them with cappings, and thereby the cappings of the Caucasian bee have more dark color than those of the middle Russian bee, which leaves more air under the cappings and gives more beautiful comb honey.

The yellow Caucasian bee is more sensitive to the cold than the gray mountain Caucasian, likes to rob, makes many queen cells (sometimes about 200 queen cells in one colony), swarms extensively, gathers less honey than the gray Caucasian bee, and is not so peaceable. The gray mountain Caucasian bee is so peaceable that the native beekeepers manipulate the frames and bees commonly without veils and smoker.

The microscopical biometric investigations of the Caucasian bees were begun by the Russian professor, G. A. Koshevnikov, in the year 1900. He found the longest proboscis (submentum and mentum and ligula), about 6.875 millimeters, in the bee from the province of Kootais. K. A. Gorbacheff continued the measurements of the Caucasian bee. He found the following lengths of proboscis:

Bee from Lenkoran, 6.36 mm.; bee from Erivan, 6.39 mm.; bee from Tiflis, 6.47 mm.; bee from Elisavetpol, 6.47 mm.; bee from Ordoobat,

6.59 mm.; bee from Swanetia, 6.61 mm.; bee from Abkhasia, 6.66 mm.

Mr. K. A. Gorbacheff took, however, only ten bees from one locality. It is too little.

More numerous measurements were made also by the Russian investigator B. P. Khokhloff in 1916, especially in the relation to the ability of the Caucasian bee to gather the nectar from the red clover. Our beekeepers are interested very much in this problem. Khokhloff measured 300 bees from one race and took these 300 bees from three colonies, 100 bees from one colony. Thereby he found the following lengths of proboscis:

The bee from Alkhasia, 6.73 mm.; the bee from Kars, 6.64 mm.

I measured microscopically, in 1926, 150 yellow bees from Kooban (North Caucasus, Staniza, Novoleoshkovskaya, 46° of the northern latitude) and 150 bees from the gray mountain Caucasian race, which I received from K. A. Gorbacheff, of Tiflis. Every 150 bees were from three colonies (50 bees from one colony). I took them as emerging bees and determined their weight. These weights in grams and results of my measurements in millimeters are presented in the applied table:

Gray mountain Caucasian bee—	
Average weight of one bee—	0.1159
Length of proboscis ———	6.6023
Length of right forewing —	9.2356
Width of right forewing —	3.1849
Sum of widths of third and fourth tergites ———	4.5238
Yellow bee from Kooban (North Caucasus)—	
Average weight of one bee—	0.1005
Length of proboscis ———	6.4656
Length of right forewing —	8.9017
Width of right forewing —	3.0242
Sum of widths of third and fourth tergites ———	4.3485

We see from this table that the gray mountain Caucasian bee is larger and has a longer proboscis and longer and wider wings than the yellow North Caucasian.

As compared with the common, our middle Russian gray bee, such as from the apiary of Tula's Apicultural Experiment Station, the gray mountain Caucasian bee has more than 7.38 per cent greater length of proboscis, more than 0.22 per cent greater length of the right forewing, more than 0.89 per cent greater width of the same wing, more than 5.44 per cent total width of the third and fourth tergites, and more than 6.95 per cent greater number of hooks on the right hind wing.

So we see the gray mountain Caucasian bee is smaller than the middle



Caucasus region, home of the Caucasian bee

Russian bee, has longer proboscis and almost as large wings.

Therefore it may be said the mountain gray Caucasian bee is the best for gathering nectar from red clover.

There are many queen breeders of the gray mountain Caucasian race, but the surest is K. A. Gorbacheff of the Tiflis State Silkworm Culture Station.

An Englishman Exhibits in France

By William Wilson, in British Bee Journal

IT is quite twenty years ago that I retired as an exhibitor of honey, or at least thought I had, my principal reason then being to give the newcomers a chance to win the principal prizes, which I had been doing for years. I am still very much of that opinion, viz., that it is a bad thing for any beekeepers' association, and a great "bone of contention" between different sections of beekeepers, when the same exhibitors carry off all the principal awards year after year. The cause of dissatisfaction is much magnified when the successful exhibitor happens to be an official of the society. While showing honey is not by any means a paying game by itself, it certainly has many things to recommend it, such as to stimulate beekeepers to handle their produce in the most perfect manner, so as to attract the public as buyers.

Though I gave up showing twenty years ago, the spirit of the showman has been very much alive, and I never missed a honey show in either Scotland or England as long as I lived there, nor have I missed any show of importance during my six years' residence in France. Anyone who has not visited a French honey show can have no idea of the vast difference there is between French and British methods. While the ordinary French beekeeper could give the British beekeeper many valuable lessons on how to make beekeeping pay, principally by cutting down the costs, the British beekeepers can beat them by streets in preparing honey for exhibition. It seems to be just the very opposite policy the beekeepers follow here, to what is done in beekeeping in England, viz.: while first-class honey is certainly gathered and sold by the ton in France, it is only third-rate quality that one generally sees on the show-bench. The principal reason, I think, is this: the majority of the French who keep bees do so for the money they make from them, and not as a plaything. All the big shows are held in the winter time, otherwise there would be no exhibits if held when the bee season was on. By the end of September all their principal crop is sold and the money in hand, and by the time the show season is on they have nothing on hand but honey that was of too poor quality for the dealers to touch. When I met Mr. W. Herrod-Hempsall and Mr. Richards

at Marseilles three years ago, and visited the exhibition there, they were both struck with the poor quality of the honey exhibits, but I did not know the reason then. This showing only in winter time is one instance of the economy practiced by the French beekeepers, and in my opinion is a most sensible one. At Orleans last May was held a big agricultural show, which lasted for a week. There was included and advertised a section for apicultural products. I motored fifty miles to see it, being purely interested in the bee department. Imagine my surprise and regret when I found only one exhibit of two hives. I met a beekeeper whom I knew, and asked him why there were no honey exhibits, and his reply was, "Do you think our beekeepers have time to waste in May, showing honey?" After seeing the class, etc., of the honey staged at the various shows I had attended, I often felt that I would like to enter the arena again and show them how we did things in England, and this year I had an added stimulant in the person of my partner, who is a novice as regards honey showing, but has more than the average beginner's enthusiasm. He said to me one day when the schedules for the principal honey show in France came by post, "Why can't we put up an exhibit and have a week in Paris?" And both our better halves said, "Yes, why not?" as Paris somehow always appeals to women of any age, and most men when young, but not much to a man of my age—or at least should not. However, as it was three against one, I was forced to give in, but not before I consulted my bank book to see how my balance stood. I had no fears for my partner's finances, as he has not been a beekeeper long. So we filled up the entry form and entered in seven classes, and then I got busy. Now I must explain how one makes one's entry and how the exhibits are staged, restricted, and judged:

At the show in Paris, which is typical of all French shows, one enters in a part of the schedule the floor space one wants, as well as the number of tables one wants to hire; those are supplied at 10 frs. or 1 s. 8d. each. They are two metres long by one metre broad; the floor space is charged at the rate of 2s. 6d. the square metre. We asked for four tables, making eight square yards in

all. We then made our entries in the classes we thought we could make a show in, which were as follows:

1. Honey of the plains (sainfoin, clover, acacia).
2. Ditto, heather or buckwheat.
3. Ditto, in sections or combs.
4. Wax, moulded and foundation.
5. Hydromel (mead).
6. Honey cakes.
7. Best decorated stand.

There were other classes, such as honey sweets, mountain or aromatic honey, honeydew, bee periodicals and photographs, and best hive. Now all one's exhibits are placed on one's stand, and there is no restriction as to number, weight, nor anything else. One can show the honey in pails, barrels, or soup plates if one likes. You can compete with one section or one thousand, one pound of honey or a ton. Every exhibitor's name is above his stand, as well as on every package of honey. The judges go around each stand, ask the exhibitor to show them his best honey, and have a long discussion with the exhibitor as to its merits; then they pass on to the next stand and go through the same performance. They may have twenty or more stands to visit. There are generally two judges for each class. How the judges manage to decide what is best when many of the samples are uniform beats me, but they do decide, and if one is very impatient he can perhaps find out by making himself a nuisance late in the afternoon the same day, but it is generally the next day before one learns his fate. Our exhibits eased their task a lot this year, as in the principal classes our stuff was miles in front of any others. If the exhibitors are much behind the English in the show honey part, they can teach us all a lesson in the commercial part, as every stand is a honey shop. I have already recorded that our stand was eight feet square, and we staged on it three bigger trophies than are allowed in England, but ours was one of the smallest stands in the show; the stands on either side of us were quite sixteen feet long, while two must have been thirty feet long. On Sunday each of the latter had seven helpers selling their goods, and I was informed that one stand had taken equal to \$100 for honey, etc., on that day, and the show lasted for six days. I was told that another exhibitor had sold over a ton of honey, and the stand next to mine must have disposed of over ten hundredweight of honey sweets and several hundredweight of honey cakes. There were quite fifty stands in all. We had only about 300 pounds of extracted honey and 250 sections, which we had to mark "all sold" for the first three days, or the public would have only seen the bare

glass shelves; but, strange to say, the buying public did not "go mad" over our fine glazed sections and lovely clear bottles of honey. They were waiting to be served in a queue ten deep at two of the stands, where the exhibitors were selling granulated honey turned out of barrels like butter in a grocer's shop—cutting it like butter in chunks, putting it in paper and weighing it, and throwing at the buyers. Many of the customers had to use their handkerchiefs as extra wrappers, yet those sellers were getting as much for their honey put up in that way as we were asking. On Monday, the last day of the show, this seller was sold out of granulated honey; then he began to cut out brood combs filled with honey, the whole being the color of treacle, and he cleared our twenty Dadant brood boxes in this manner in a short time, getting 1s. 4d. per pound for it in chunks.

I was not sure about the reception we would get as foreigners, but our doubts were soon dispersed, as we got a warm reception from everyone. There are "dismal Jimmies" in France as well as in England, who warned us not to expect all we were entitled to, saying a certain clique always got all the prizes; but that did not dismay an old bird like me, who had listened to the same old tale for years at home shows. We not only got more than I expected, but

in going around the various exhibits afterwards I was much struck by the fairness of the awards, and wondered how they had arrived at so correct placings with the system they follow—certainly no judging by "point cards" could do it. Everybody—officials, judges and exhibitors—crowded around to congratulate us on our exhibits, and I saw no signs of jealousy anywhere. The marvel of the show was our liquid honey and sections; the former puzzled everyone. It was certainly a good sample anywhere, being a very nice light amber, sparkling like champagne, with a very fine flavor; but its most striking point was its density. It was very thick, naturally, but Nature helped it a little, as on the morning of the judging it was a very hard frost, that froze the water in basins under our stand solid. When the judges arrived I uncapped two bottles and turned them upside down, and not a drop moved. It took the judges' breath away to see solid liquid honey. Our manager, who stuck at our stand from 9 to 6 every day for the week, lost his voice answering questions.

I must put on record that it was one of the most enjoyable honey shows I ever attended, and I have no regrets, even though the bank balance I mentioned has gone to swell the account of "what the bees have cost me."

Honey as a Remedy Against Stomach and Intestinal Inflammation

By Alois Alfonsus

A PROMINENT doctor of Germany, by the name of Schacht, discusses the numerous cases of stomach and intestinal inflammations and growths, regarded as hereditary or epidemic ailments, the consequences of which are hundreds of perilous operations in clinics and hospitals.

How much useless pain, unnecessary trouble and money is spent! How many people go to their graves prematurely, and all that is so much worse, when it could be avoided!

Where shall one look for the reasons? Why is it that twenty or thirty years ago such difficulties were unknown?

It is in the nutrition that we have to look for the all-fundamental factor.

In former years a cereal soup of some sort could have been found in almost any house, mornings and evenings. Today, coffee, tea, and cocoa have been substituted. Let us take the cocoa as an example. Its nutritive and tasteful qualities are lauded until we can see people using it from childhood to late years in life. Undoubtedly it contains 20 per

cent of sugar and albumin. Now as to its disadvantages:

Professor Dr. Kobart of the University of Rostock, after diligent investigation and experiment, has come to the conclusion that the manganese out of the ground finds its way into the cocoa plant and thus into our bodies. Its acidity effect on the body is injurious. What are the actual effects? The reaction affects the intestinal wall, causing inflammation, and thus the various growths and swellings so much complained of. The effect extends to the liver and gall, causes thinning of the blood and subsequent rise of blood pressure. Impairment of the brain and intelligence follow in its wake. The symptoms are similar to those caused by the dust of the brown stone, lead and mercury to those working with it, and that they are injurious and in many cases fatal we all know.

Cocoa contains oxal-acid, which seems to affect with predilection the esophagus, the canal of nutrition and the twelve-finger intestine. That is one reason for the many complaints and trouble in the intestine. We can

see then that cocoa almost destroys the human body, as it contains 35 to 40 per cent of oxal. Black tea and coffee contain about the same amount. It is deplorable that these bad effects are not known. If those stimulants, or sedatives, as they are called by some, are left alone, and good cereal soups substituted, if complications have not yet taken place, as, for example, growths, etc., the pain should subside and gradually disappear, and the patient be cured without an operation.

Honey is an unequalled, soothing and effective remedy. One-half tablespoonful of honey taken slowly three times daily before meals, so as to be on an empty stomach, is more effective than milk. It should be well masticated in order to be thoroughly mixed with saliva, and should be pure bees' honey.

It is to be regretted that the true worth of honey is not recognized. If it were, every family would consider it one of the most important articles of diet to be bought when the other supplies for the winter are gotten.

If cocoa, tea and coffee must be had, once a week should be the maximum for any adult. Things prepared of flour or cereal should be had for breakfast, in addition to honey.

Health and vigor will be the consequences, which will not be late in coming, if such a diet is followed out.

Vitex a Good Honey Plant

Some years ago I was induced by your publication to make application to the Bureau of Plant Industry for a plant called vitex. This plant was said to be a wonder for bees. I received one from the government, and it has grown to a shrub about fifteen feet high. It blooms from the last week in May until frost kills vegetation. You can never find it without bees on it when blooming. It has borne a large amount of seed this year and I will have this for distribution soon. It is all you claimed for it, and more. Have you any data on the successful growing of this bush any other place?

Joe Stallsmith, Kansas.

(This shrub was brought to the attention of the readers of American Bee Journal several years ago after being tried on the grounds of the field editor at Atlantic, Iowa. It bloomed there from July until September and was constantly sought by the bees, as stated by Mr. Stallsmith. It still remains there, although it has not grown to the large size mentioned by our correspondent. Apparently Iowa is a bit far north for it. This species has lately become rather common in the region about San Antonio, Texas. All reports agree that it is a great source of nectar for the bees.—F. C. P.)

Representative Visitors at the Big Hamilton Meeting



SOME BEEKEEPING OFFICIALS

THIS group of representative officials includes several well known men. On the left is Prof. H. F. Wilson, Chief of the Department of Entomology of the University of Wisconsin.

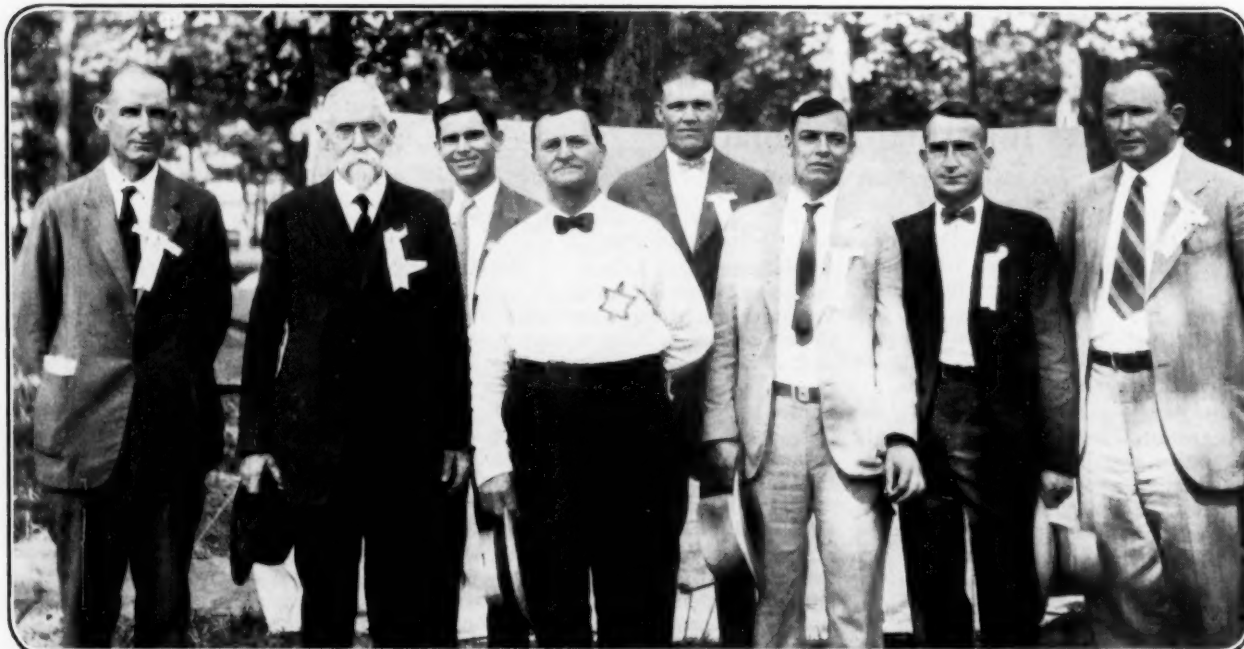
Next to Wilson is W. E. Anderson, State Entomologist of Louisiana. Just now he is active in helping the flood victims to reestablish their apiaries.

Next is J. V. Ormond, the new State Apiarist of Arkansas, formerly engaged in extension work under the United States Department of Agriculture.

At Ormond's right is Dr. Lloyd R. Watson, whose demonstration of the controlled mating of queen bees added so much interest to the convention.

With his back to the tree sits James I. Hambleton, the popular Chief of Bee Culture in the U. S. Department of Agriculture. He was born in South America.

At the extreme right is C. D. Adams, Chief Apiary Inspector of Wisconsin. Adams also has charge of the honey grading regulations under the State Department of Agriculture.



REPRESENTATIVE SOUTHERNERS

At the left is M. C. Berry, well known queen breeder and package shipper of Montgomery, Alabama. Next to Mr. Berry is John M. Davis, of Spring Hill, Tennessee, the well known queen breeder.

George L. Lott, of Louisiana, is a queen breeder who is getting acquainted with northern conditions by serving as an inspector in Iowa under Prof. F. B. Paddock.

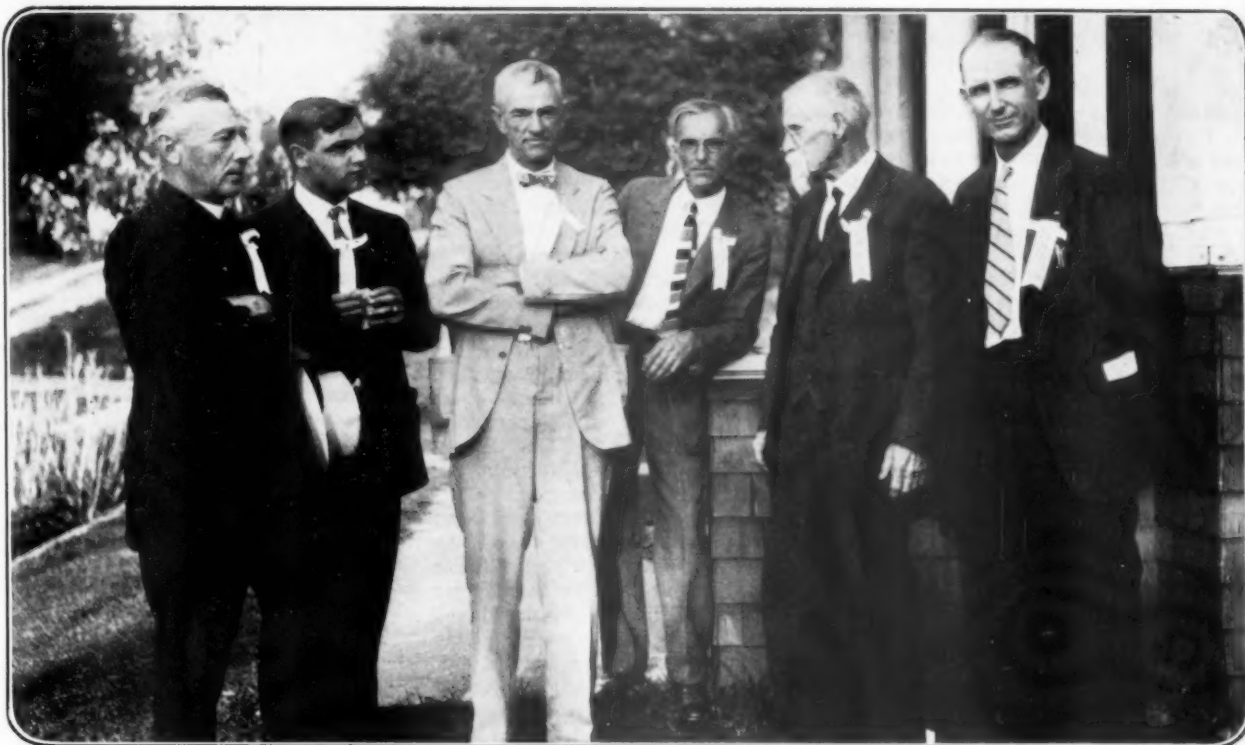
The big fellow in the center is P. J. Myers, of St. Louis, Missouri, who was selected to serve as the beekeeping sheriff for the big meeting.

Next in line is A. D. Worthington, the genial professor in charge of extension work in beekeeping in Iowa. Worthington comes from a big plantation in Mississippi.

J. V. Ormond, State Apiarist of Arkansas, appears in another group also.

E. S. Prevost, Extension Specialist in Beekeeping at the South Carolina College of Agriculture, came the farthest from the East of any visitor present.

At the right end is W. E. Anderson, of Louisiana, mentioned in connection with another group also.



FROM BOTH NORTH AND SOUTH

The happy looking fellow holding his white hat is Prof. Francis Jager, Chief of the Department of Beekeeping at the University of Minnesota. Next is James Thompson, assistant to Prof. Jager. They make a good team. Jager has a beautiful country home at St. Bonifacius. Thompson is kept busy with the details of office correspondence and teaching, but finds time to get into the field.

The tall fellow in the light suit is Jay Smith. Every-

body missed the whiskers when they met Jay. His picture has been so widely published with his bee whiskers that folks feel that something is lacking when they meet him face to face.

Next to Smith is Frank C. Pellett, Field Editor of the American Bee Journal.

John M. Davis, of Tennessee, has already been introduced elsewhere. At the right is M. C. Berry, of Alabama, also introduced in connection with another picture.



REPRESENTATIVE HONEY PRODUCERS

First in line is G. C. Matthews, of Minnesota, formerly secretary of the state association of bee men and teacher of beekeeping in the state university. Matthews is now producing and selling honey in the sweet clover region.

The young fellow next to Matthews is Leslie Nordholm, a graduate of the Iowa College of Agriculture, who is now assisting Noah Williamson.

In the center C. S. Engle, formerly of Texas, is one of Iowa's extensive producers of honey.

Noah Williamson is president of the Iowa Beekeepers' Association and a large honey producer as well.

At the right by the tree is Harry A. Pease, of Shenandoah, Iowa. Pease is an enthusiastic advocate of the big hive.

Beginning with Bees In the Peace River Valley

By W. D. Albright

ABOUT the year 1916 Mr. E. D. Prevost came to the Peace River district from southern Saskatchewan. On his way up he called at the Department of Agriculture in Edmonton and asked for information about bees.

"Why! you can't keep bees up there," was the answer; "there is no clover."

However, he got a bee bulletin, and sometime after settling at Wanham ran across a statement that a certain sample of fireweed honey had taken a prize at an exhibition. Deciding that he would get the bees, clover or no clover, he looked up one agricultural journal and saw an advertisement of bees at \$22 per colony or \$7.50 per two-frame nucleus. Consulting a bee bulletin, he happened to see a picture of a hive carrying nine supers, making ten stories in all. This, he decided, must be what they call a ten-frame hive, and inferentially a two-frame nucleus would be a hive with one super above the hive body. So he sent the \$7.50 and waited, going to meet the semi-weekly train regularly. At last one day, when he had failed to meet the train, a neighbor came and mentioned that his bees had arrived, stating that he had carried them over to the local store. Mr. Prevost thought he must have had quite a load to carry a two-story colony, but he hitched up and went to the store to find the bees in a little case containing two Langstroth frames. He was up against it for hives and equipment, but his ingenuity was equal to the occasion and he set to work to make a hive, stand, cover, smoker, veil, gloves and frames, those being quite like the ones he purchased later.

Although handicapped by complete inexperience, he has made a success of the bees, and in 1926 had one colony from which he took twenty-one full Langstroth frames of brood and still had from that one colony a surplus of four hundred pounds of honey, including a few sections, some of them not very well filled, which he counted in at one pound per section. Although he has white clover, and in previous years has had buckwheat, he finds his bees work very little on these. They seem to go to the hills, where he has noticed them working a good deal on kinikinnick, bearberry. There was comparatively little fireweed last year.

In the fall of 1926 he put sixteen colonies in quadruple wintering cases, sheltered only by a somewhat thin poplar bluff, but in spite of the long winter and a very lingering

spring, he brought through eleven of these in very fair condition. His wintering cases are made with somewhat more room for packing on the sides than is advised by the Bee Division. Underneath the wintering case he places sawdust, arranged in saucer shape so that it will come up to the bottom board on the outside, but leave a depression and an air space under the middle. Over the top of the hives he places newspaper, which extends about six inches down the sides as well. The insulating value of newspaper he had discovered by using it to wrap around his socks during cold weather.

To pack between the hives and the wall of the wintering cases, he went to the planing mill last fall for shavings, but did not like the feel of them and thought they would be too coarse and open for his purpose. He went home without the shavings, and used oat chaff instead, reasoning that as it felt soft and warm it should be good insulating material. So from it all it will appear that Mr. Prevost is an original and an observant man, and his success with bees amid the wild flora in one of the most bushy settlements of the Peace River district is distinctly creditable.

Bees Pay for Daggit's Education—News Notes from University of Wisconsin



Edmund Daggit

Edmund Daggit is coming back north in the spring to sell his bees. Everything is to be sold out, lock, stock, and barrel. And he hasn't been stung either.

Mr. Daggit spent nearly a decade in the University of Minnesota, and the bees "paid the freight," or a greater part of it. He was three years in the Minnesota School of Agriculture, from which he was graduated in 1917. He entered the College of Agriculture and spent four years there. Then, to fit himself for the career he had marked out, he put in nearly two years as a graduate student, majoring in agricultural economics at University Farm and taking a minor course in the School of Business on the main campus.

Soon after completing his graduate studies and receiving another degree, Mr. Daggit accepted a \$3600 appointment in the Bureau of Agricultural Economics at Washington. Then, the other day, when the chief of the Division of Cooperative Marketing at Washington was asked by the American Cotton Growers' Exchange at Memphis, Tennessee, to recommend some young man for manager of its research department at a salary of \$5,000 yearly, the Washington man pointed to Mr. Daggit and thereby incurred the wrath of the young man's chief, who declared that he never had a better man in his department than the former Minnesota student.

And this is why the bees are fading out of the picture.

Mr. Daggit purchased his first hive of bees in 1914, the same year that he entered the School of Agriculture at University Farm. He was then 18. His apiary was increased from time to time until in his later college days he had the income from more than 130 colonies of bees which he kept on his father's farm near Chippewa Falls, Wisconsin. He was determined to have a higher education, and the bees made it possible for him to get it. He spent his summers on the farm caring for them, and in the fall and early spring, when they needed but little attention, he continued his college studies. When his college work was done in the spring and the bees were at work in the neighborhood clover fields, he would return home to see that they had plenty of storage space for honey and that swarming was prevented as much as possible. In July and August the work of preparing honey for the market kept him busy. Then in September the bees were prepared for the winter. Each November he would journey back home to store his hives in the cellar, where they remained until the following April.

With \$5,000 coming in every year, the bee money doesn't look as big

as it did once to Mr. Daggit. Besides, he is too far away to give the colonies the attention they should have, so he is coming back next spring to sell them out.

Boost Honey Candy

At a recent local meeting of beekeepers, this question came up: Why are the bee journals so quiet about the few candy manufacturers who specialize in honey candy, and already buy honey in carlots for that purpose?

I suppose their attention has not been called to it. The Honey Candy Company, Pittsburgh, Pa., is giving out honey booklets recommending honey, and they write: "One thing we do know, and that is that the day of sugarless candy is here now." I wish bee journals would look into this matter. I know that the Wholesale Food Corporation, 1828 Amsterdam street, New York City, will be using a ton of honey per day this fall.

Some or all of us beekeepers here were surprised to learn what good honey candy can be made by these firms. The joke is that strangers are actually boosting our product of honey (indirectly). Are we asleep? I sometimes think so. A Milwaukee firm is commencing now to make honey candy. They made some in the spring, having live bees in the show window. One drug store sold \$115 worth of honey caramels in one week, special sale 69 cents per pound. A Hershey Company representative stated that last year seventy-five million boxes (not bars) of 5- and 10-cent, or containing 5- and 10-cent bars chocolate candy, were sold. Three months ago they started making honey candy bars, as you of course know.

If 10 per cent of the total output would be honey bars, how much honey would that move in a year? I don't think you would need a crop and market report in your Bee Journal.

Let every bee journal and every beekeepers' association get behind this, encourage the honey candy manufacturers—yes, shout it from the housetops. Sales of honey candy help boost honey and the sale of honey. We are certainly getting free advertising from these candy firms.

John Kneser, Wisconsin.

A Puzzle

By Charles Hofmaster

Bumblebees and honeybees, being closely related, have very similar habits. Both are nectar gatherers, but it is known that there are a number of honey plants which are visited only by the bumblebee and not by the honeybee. With most of

these plants, the reason for it is known. It is the physical inability of the honeybee to reach the nectar in the blossoms. It is proved, though, that in probably all those instances the bees do not object to such nectar, but will readily and freely gather it if through some agency their access to it is provided. But there are other plants where the different behavior of those two kinds of bees is quite inexplicable. It can hardly be on account of the taste or scent, as bees as a rule have little choice about that, and if they would be objectionable to the bees, so would they be also to the bumblebees, it would appear. Now I will cite a most flagrant case:

Here grows an excessively spiny weed; the local name of it is "bull-nettle." I do not know the botanical name. It grows only around habitations, as does hoarhound. It is an annual, grows as high as eighteen inches, and spreads out, often three

feet across, and blooms in late summer and fall. The yellow flowers are very profuse and are followed by seed capsules bristling with spines. There is nothing at all obnoxious, not even peculiar, about this plant, as to its taste or scent. It is eagerly frequented by the bumblebees for nectar and pollen; they just swarm on it. In spite of the dry aspect of the plant, considerable nectar must be secreted, as the excitement of the bumblebees would indicate. But there is never a honeybee near it, although the nectar would be easily accessible to them. Now why should a plant be such a tremendous favorite with the bumblebees and at the same time be completely shunned by the honeybee? Oklahoma.

(The plant sent is the Buffalo Burr (*Solanum Rostratum*), which is common on the plains from Nebraska to Texas. Honeybees very evidently are less easily pleased than the bumblebees.—Editor.)

Homemade Steam Outfit

By Harry A. Pease



THE picture shows an inexpensive outfit for heating a steam knife and warming a small room. The boiler was a pressure tank for a gasoline lighting system. It will stand about 100 pounds pressure, but we never let it get over 25 pounds.

As will be seen by the picture, it has three small and one large openings on the top. The large one is used to fill it with water, one small one for the steam gauge and one for the steam pipe to the knife. The third one goes to the bottom of the tank and at present is plugged. Later

I may connect it with the water system so that I can add more water without letting the steam go down. I had a plumber put two try-cocks on the side, so I can tell how high the water is in the boiler.

For heat, I am using a large gasoline burner made by the American Gas Machine Company, Albert Lea, Minn., and have no trouble keeping a good head of steam.

I plan to connect the boiler to a steam radiator of about fifty feet of inch pipe to heat my honey house this fall to help in extracting.

IOWA.

Neighborhood Clean-Up Pays Dividends

By George R. Harrison

WHEN 95 per cent of the apiaries, big and little, in one-half of a county are infested by American foulbrood it means hard lines for even the most efficient of honey producers. Such a situation confronted members of the Pottawatomie County Honey Producers' Association of Iowa before a recent official inspection which demanded a cleanup. Let a skilled beekeeper work ever so hard in his effort to eradicate the disease, and no sooner would he have the matter under control than the infestation would be carried back again.

Honey producers who in past years had prospered from bees were so discouraged that they were planning to quit, and some had already given up in despair. Then came the reorganization that called for state help, followed by drastic inspection and the order for the cleanup. Out of business went the passive ones and those also who just happened to have bees because the bees had settled on the premises. But the professional ones awoke to new ambition, and as a result their season's harvest of honey was a good one.

When I began writing this I had in mind T. L. Shawler, a beekeeper from his youth up. In times past he has had as many as a hundred colonies. Proceeds from honey production paid for some of the twenty-acre fruit farm which he owns and occupies. But foulbrood finally became so troublesome that Shawler, like others, was preparing to quit; but when the inspection was ordered he volunteered three days of his time to accompany the inspector, and during that period decided that so far as he was concerned this foulbrood would yet be turned into benefit. It was going to leave the bee business in the hands of only the capable ones. It would mean better honey prices. Since then, Shawler has harvested one of the old-fashioned honey crops.

Not far away from his was a producer with fifty stands of bees. He, like the rest, was ordered either to clean up or burn up. Because of the time, the trouble and expense connected with eradication, he preferred to burn the hives and their contents bodily. Shawler saw opportunity. He would take the bees away and save their owner even the trouble of burning them. The owner agreed to give them to him. From the authorities Shawler got permission to transfer them to his own place to take them through the shaking process along with his own, and after that came the systematic renovation of all the hives until all

the bees were in clean homes and on new foundation inserted in brand-new frames. When the process was completed Shawler had fifty strong colonies where before his aggregation was 100 weak ones.

It was some work to shake all of the bees, but Mrs. Shawler volunteered to help her husband in this, so in about three days the task was finished, as Shawler relates it.

"Beginning in one corner of the apiary, the first hive was smoked and then set back out of the way. Then in its place was put the new or renovated hive body with its new frames and foundation. Enough bees were shaken or brushed into it to insure colony strength. No thought was given to queens except that I believed that the queening would take care of itself. It would be a survival of the fittest in the fight that would surely ensue.

"After mixing these bees all up this way, queens included, I never had a swarm come out, and neither was there a queenless hive," Shawler told me.

"And I never looked to see what hives might be free from the foulbrood," he went on, "but I worked just as though they might all have it. I gave new foundation and new frames in every case. Now I have decided that it will pay to renew the comb occasionally, even if there is no foulbrood. It surely seems to put the work into the bees. Anyway, my bees worked better than they ever did before."

Of course, Shawler realized that some of the extra production was due to the fine, long honeyflow from sweet clover that abounds all over his district. Another source of nectar is the big acreage of black-cap raspberries which he has. He is one

of the greatest growers of this crop in the state. The blossoms give some nectar while the sweet clover is coming on.

Shawler's best hive, he figures, gave him about 400 pounds of extracted, and there were approximately 100 pounds remaining in the hive to assure plenty of winter sustenance. Shawler says that conservative estimate of his yield per colony would be about 200 pounds. He had sold 2100 pounds to one wholesale buyer, but all other he was marketing with grocers in Council Bluffs and Omaha, the extracted being mainly in glass.

Shaking the bees to the new foundation resulted in a higher quality of honey that shows water white in its tall, slender glass containers.

"Just this fall I have discovered that, if you put good honey in pound or half-pound glasses, there is no trouble to move it," Shawler said, "and you don't have to worry much about the competition with a slightly lower quality that would cut the prices. I put twenty-four of either size in nice corrugated cartons, and the grocers like it. And when they display this honey they get the customers. If the stock runs low before I get back to them, they are calling me by phone."

Shawler finds that not many of the grocers like the honey in tin, and especially if the cans are large. Honey sells faster in containers that are small and transparent.

Now in each of Shawler's fifty hives he left probably a hundred pounds of honey. There is a full super on each hive body.

"Plenty of honey in the hive over winter is the same as money in the bank," was the way Shawler expressed it. He increased this amount over other years because he believes he saw a lesson in a neighbor's method.

Skunks Do Their Stuff

By S. J. Griggs

SEVERAL years ago, I well remember an article printed in the American Bee Journal relative to skunks robbing the hives of live bees, etc., and somehow I did not give it much thought, and sort of took it with a grain of salt, but this summer I have had my doubts in the matter entirely removed, when one evening a few weeks ago I took my usual walk into the apiary, as I so often do, to listen to the roar of the bees, which is quite restful after a hard day's work. Our bees are under sheds to protect them from the hot rays of the sun in mid-day, and also

to break the cold winds in the spring to enable better heat control. We maintain a corner of the sheds for such implements as the smokers, hive tools, smoker fuel, etc., and have a set of shelves in this corner.

It happened we had set some partly filled combs of honey on the top shelf, thinking we might use them, and as I neared this shelf, it being dark as a pocket, I heard something scrambling down and disappear in the rear of the lower shelf. I suspected it was a cat, so paid little attention, but walked around into the other department, where some

sixty colonies are kept, and I also noticed another scamper down off the alighting board of one of the hives, and a run across the yard. I immediately came to the conclusion it must be skunks instead of cats, so went to the house and procured a lantern and the gun.

Returning to the apiary, I went to the corner of the yard where we had a large box in the foreground, and I pulled out this box very carefully, not wishing to permit the intruder to get the start of me, and, to my surprise, after pulling out the box the old lady herself, Mrs. Skunk, stood there looking at the lantern as though she thought it was brought out for her special benefit, but without wasting any time I set the lantern down and the gun spoke quite promptly, and Mrs. Skunk was put to rest, and without any very great annoyance in the way of perfume.

I then started on the rounds and found a young skunk trying to hide by one side of the fence which encloses the apiary, and he was also sent to the happy hunting grounds. After going outside of the yard I shot the third skunk that evening and, not finding any more, concluded I had finished the family, so buried the three of them all at one funeral.

The next evening I concluded I would at least make sure, so lighted the lantern and went over the same ground, and only killed one that second night.

I have made it a business now to look over the yard each evening, and have reached the number of six skunks killed, and besides I have shot at several in the distance, and especially a large black fellow, who I believe is the dad of the whole flock, as he can run like a deer.

Now this may be a good lesson to another apiarist as well as it has been to me. Skunks are not in an apiary for the fun of it, and actually do destroy bees, as well as eat any particles of honey or combs that are left around the yard.

This has caused quite a little fun in our small town, as the editor of the local paper became aware of it and printed an article saying Griggs is now turning his apiary into a skunk farm, so anyone wishing a select skunk skin might apply to him, etc.

I have certainly had considerable fun out of it, as it is quite enjoyable to notice how slowly these little victims move when a light is turned on them, and they stop and seem to be spellbound for the time, so it is an easy matter to shoot them; and, contrary to my expectations, they leave very little scent to remind you of their visits, and this is easily killed by spraying with a solution of crude carbolic acid and water.

League Head Makes Special Appeal for Membership

"FROM now until convention time special inducements are being offered, both for new memberships and for renewals. Efforts are being redoubled to end up the year with a complete return of the old members and a host of new ones.

"Are you interested in an organization which stands for and continually teaches cooperation? Do you believe that the marketing situation can be improved by education of our beekeepers? Don't you think that more authentic facts should be learned by research of the food and health value of honey? What about a couple of government specialists to help our local and state organizations along, and teach us all better marketing methods? Shouldn't we have one national bee journal, owned and published by the beekeepers themselves? Can you consent to be a part of an industry without a strong national organization to further its rights?

"Just think seriously about these questions, and if you can't escape their logical answer, the League offers the best opportunity now of obtaining a membership in the only national organization of beekeepers, which can gradually help in the solution of our national problems. Here are the special inducements being offered to round out the greatest year in League history:

"1. For all renewals of individual membership, before January 1, the member will receive a free copy of the League Law Book. This book formerly sold for \$3.00. Your membership, plus the book during this period, is only \$3.00. **Also please note that all memberships expire November 1, no matter when you joined the League.** This is a feature of the new constitution designed to simplify the keeping of records and fix the fiscal year.

"2. Any new members coming in before the convention at Frisco the last week in January are subject to the above offer. This will pay their membership up until November 1, 1928, with delinquency not effective until January 1, 1929.

"3. Anyone, a new member or old, will receive a free membership for one year and a free copy of the League Law Book for obtaining five new members at the regular rate of \$3.00 each per year. The new members will receive the Law Book free, also.

"4. A free copy of the Law Book will be given for all organizations memberships, new or renewals. Also, all new organizations joining during

this campaign will receive free a complete set of the 1927 volume of the American Honey Producer.

"Don't forget that the PRODUCER, the official publication of the League, is always sent free to all individual members. It is a part of the membership benefits. A free copy of this publication and the new constitution of the new League will be sent to anyone interested, free of charge. Send your requests or your memberships to C. L. Corkins, Secretary, Laramie, Wyoming."

H. F. Wilson, President,
American Honey Prod. League.

Successful Requeening

I have requeened one hundred colonies of bees in the last two years, and have not lost any queens.

I destroy all queen cells and take old queen between my thumb and fingers and crush her, then hold her over the bees. They have a very keen sense of smell, and they know at once that the old queen is dead, and the seriousness of the situation, and they are willing to accept, almost at once, a new queen. All that is necessary is to place the queen cage over the space between two racks and let the bees eat out the candy, and everything is O. K.

New York.

(This is a good method, and we feel sure it will work well, especially if there is a slight honeyflow. However, when there is no honeyflow and the bees are robbing to some extent, almost every kind of method will fail occasionally. Your method is the one we generally use.—Editor.)

Alberta's Honey Crop About Three Hundred Tons

Alberta's honey crop this season promises to be in the neighborhood of three hundred tons, according to reports from the southern part of the province, where this industry is steadily gaining in importance. Apiarists at Coaldale have shipped their first carload of honey to Calgary, and further shipments will be made to Edmonton. A new extracting plant, the largest in Canada, has been installed at the Reidel headquarters at Coaldale and is operating steadily. Warm weather and a wealth of sweet clover and alfalfa bloom are combining to give the bee men the best harvest on record, and Alberta is expected for the first time to supply its honey needs from within the province.—Irma, Alta., Times.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

PACKAGE BEHAVIOR A PUZZLE

Am a regular reader of American Bee Journal and would appreciate if you will kindly advise me the following, as I often, and presume will continue to, say to myself, "What would Mr. Dadant do?"

Got a two-pound package, one month late this spring, with queen. Colony did good work; rather slow going up, though, and tendency to crowd brood. Fed them eleven pounds syrup (two parts sugar to one water) first week in October, in a ten-frame stand; hive, Langstroth. Also, they had about six combs white honey when fed. I never allowed them to swarm. About sixteen days after feeding, I found a queen dead at entrance, wings torn and badly used up. Have not had weather to go in and see if they still have a queen, as it has been 30 degrees and below lately. Did the feeding induce late swarming, then unable to go on account of weather, virgin queen was killed? Is it possible from your lengthy experience to tell me whether the virgin or laying queen would win out? With this apparently young laying queen, is there possible superseding? If so, there would be no drones to mate with. Am afraid hive may have only a virgin queen for winter. Hive was never touched nor opened after feeding. Apart from above, queen laid good. They have lots of stores. They took feed good. Pretty sure dead queen was from this hive being so late. Weather has been worse than fair all year. Have five colonies. MANITOBA.

Answer.—This is a matter of guess, since you have not looked inside to find whether there is any young brood, eggs, or a queen in the hive. The possibility is that the old queen may have ceased laying and that they reared a young queen. She may have been reared early enough in the season to be able to mate and the old queen may have been tolerated in the hive even after the young queen began laying. In that case the colony is all right.

It may be also that the matter is as you suggest, that a young queen was reared too late to mate, or that there is no queen in the hive at all. These matters may be settled definitely in early spring, just as soon as the queens begin to lay. If you find eggs, brood sealed showing that it is worker brood, you may be sure the hive is all right. If there is a young queen that did not mate, she will probably lay eggs anyhow, but they will hatch as drones. In that case it will be easy to recognize that the brood is sealed with a round top, instead of flat top, as with workers. The queen then would have to be killed and a new queen given them.

Our "Honeybee" treats of similar questions and you had better secure it, or a similar textbook.

MOTH "DESTROYS" COLONY

1. I have on hand a hive in which the waxmoth have worked. I had a swarm in the hive and they were destroyed by the moth. I cleaned the hive out, put in new foundation. I took a gas torch and singed all parts of the body and frames. I put a good swarm in the hive and they lived successfully for two years. This summer I neglected looking at the hive, thinking them to be all right, for several weeks. Upon looking at them the other day I found that the hive was infected badly with moth. I failed to find any bees in the hive. Do you think that the bees left the hive, or have they been eaten by the moth?

2. Would the fact that having moth in the hive before have any effect this time?

3. Do you think it would be all right to clean up the frames and use them again, or would it be better to get new ones?

4. Is there any better way of cleaning the hives than using the gas torch?

5. Is there anything to prove that a hive by itself will not do as well as if it were located in an apiary of several colonies?

ILLINOIS.

Answers.—1. Your colony became queenless and the bees died out slowly. When they became too weak to keep the moth out, the latter got in and ate up the combs. Of course, by the time you found it out the bees were all gone. Moths don't eat bees. They just lay eggs and the young worms eat up the combs.

2. No, moths do not propagate, like foul-brood, by microscopic germs. Their eggs are visible to the naked eye. They cannot withstand the winter of our climate, unless they are in some corner of a hive or in a warm room.

3. Yes, of course, both the hive and the frames may be used again, after having been cleaned.

4. You do not even need to use the gas torch for hives that have had moths. Just clean them out.

5. A colony by itself will surely do as well as if others were near. What you need is to read a textbook on beekeeping and get posted.

SUPER BELOW HIVE—LATE MOVING

1. I keep bees in only a small way—have eight colonies, one of which is in a Modified Dadant hive; the others are in eight- and ten-frame hives. It is my first year with the Modified Dadant hive.

I have followed the practice, for several years, of keeping a 4½-inch super over the regular hive body, keeping it there all the year round. I have noticed considerable favorable comment on this practice in the American Bee Journal recently, and I have always been well satisfied with it.

Last spring I changed the order of things by placing the super below the hive body. This not only gives me an opportunity of more readily examining the hive body, but as the queen usually prefers to lay in the upper part of the hive, it gives an unbroken area of space for laying—much larger than with the super on top. As far as I can see, this arrangement has been very good so far.

I believe all beekeepers desire to have as much honey for winter stores as possible, this honey to be in the upper part of the hive. With my arrangement, this order is reversed, the honey for winter being to a large extent below the main body of bees. I am wondering if you have had any experience on this line. Do you think it would be better to change the super back to the top again for winter?

2. I want to rearrange the hives for better winter protection, which will necessitate moving some of them about twenty feet. Now that the flow is practically over, would not this be a good time to move them?

NEBRASKA.

Answers.—An additional story is often needed with the Langstroth hive, for brood and winter stores, because the brood chamber is rather small. But it is not needed with the Dadant hive, except for surplus honey, and then it should be on top. You must not expect the bees to put the honey in the super below the brood chamber, because the bees always want their honey above the brood combs, so that their cluster will be between the entrance and the surplus honey. This is easy to understand, as they could not defend their stores so well against robbers if the stores were

between them and the entrance. Besides, they want the honey above the cluster so that they may reach it without trouble in cold weather. So I believe that you will find out that they did not put much honey in that super below the main hive body.

2. Moving bees a very short distance is always more or less annoying because the old field bees are so accustomed to their former location that they are likely to get lost or enter the wrong hive, when their own hive is moved. If you move them about, you must disturb them considerably, so that they may know that something is wrong. Besides, you should place a slanting board or something in the way of an obstacle in front of the hive, to show them, as they fly out, that the location of their home has been changed and that they must learn the new location. Many bees are lost by the neglect of this precaution when moving bees only a short distance. So bear it in mind when you move them.

DETAILS OF CELLAR WINTERING

1. I have several new swarms of bees that I have had to feed this fall. I am thinking of putting them in the cellar. Would you advise covering the entrances to the hives with screen wire, or leaving them open? Will they come out in the cellar or bother if they are left open?

2. Would you advise putting them out a little while if there came a warm spell in the winter?

3. In storing my old swarms of bees outside, would it be all right to make a little sugar candy and lay it on top of the frames, for fear that they run out of feed before spring? Will they go up and eat this?

4. If I put it in, how much would you put in, and which kind of sugar makes the best feed, granulated or brown sugar?

ILLINOIS.

Answer.—1. The cellar should be at a temperature that will cause the bees to remain in the hive unless they are suffering. The usual temperature necessary to winter bees in the cellar is between 40 and 45 degrees, sometimes a little higher. The degree at which they remain quietest is the proper one. So it is unnecessary to close the hives. In fact they will fare best if they have plenty of ventilation. We always leave the entire entrance open.

2. We have never found it good to put the bees out on warm days, because it starts them breeding and they are less quiet afterwards.

3. Sugar candy, if made properly and not burnt, is very good to help out the supply of the bees. Lay it right on top of the frames, over the cluster of bees. They will come up to it when they are short. Four or five pounds, if the bees already have some honey, would probably be ample. It takes less of it than of sugar. Put a quilt over the candy.

4. Make it out of the best granulated sugar. Don't use brown sugar or corn sugar.

WHERE, WHEN, AND HOW

1. What is the best part of the country for beekeeping? Would Maryland be a good place?

2. What are the outstanding risks, difficulties and liabilities that beset it?

3. How much cash should one have before starting? What would be a proper number of hives to have as a beginning?

4. Can you give me the name of someone who buys honey who would give me information as to prices, etc.?

5. Do you know of some beekeeper who might be willing to let me have some sort of a job whereby I could learn the practical side of it before embarking on the project?

KANSAS CITY.

Answers.—1. The best part of the country to succeed with bees is certainly California, although they have some bad years, too. Then come Colorado and several of the

mountain states. But you can keep bees successfully in almost any state of the Union, if you select the location. You may succeed not very far from Kansas City, along the Missouri River bottom lands.

2. The risks, difficulties and liabilities of the business are all dependent upon the weather, for the keeper of bees is like the farmer, much dependent upon the weather.

3. It has been the custom, from time immemorial, to advise beginners to start only with a few colonies, not over half a dozen, so as to avoid the losses caused by possible mistakes of beginners. Besides, you learn by enlarging your apiary. So you must retain some other business for a while and until you can make it pay, and especially until you learn whether you will enjoy the business and are fitted for it.

4. When it comes to selling honey, you will have plenty of opportunities to find purchasers, when you have bees enough to make a crop worth while.

5. There are plenty of beekeepers who need helpers. The only thing to do is to put in a little "want ad" in a bee magazine.

WINTER STORES—PACKING

1. How is goldenrod and buckwheat for wintering bees on? Is it safe? If not, would it be all right to feed ten or fifteen pounds sugar? I have plenty of this kind of honey. I wintered them last year on sugar exclusively and I had such good success.

2. I used leaves for packing. I had intended to use straw this year, but since reading the article in the last issue of the American Bee Journal I am somewhat in doubt. The straw I intended to use has been in shed since July. I had intended to run it through the feed cutter and chop it up fine.

The article in American Bee Journal did not say whether the straw was cut up or not. What do you think about using cut straw?

WEST VIRGINIA.

Answers.—1. I consider goldenrod and buckwheat honey as very good for winter if fully ripened. The worst feature about the fall blossom honey is that it is sometimes harvested so late that it does not ripen, and especially that the bees sometimes leave a lot of it unsealed. In such cases, if it is not consumed early, the unsealed honey will absorb moisture and then becomes unhealthy. I have seen honey absorb so much moisture that it overflowed out of the cells. But if you have to feed, you might as well feed sugar syrup properly made and save your honey for sale. Nothing is better than sugar syrup for winter, though it is not desirable for food in breeding.

2. The difference between leaves and straw, if dry, is not of enough importance to be worth considering. We have nearly always used leaves inside of the hive, because they are always in reach. But straw, especially if you chop it into chaff, will do very well. Be sure and use a good wind-break.

FUMIGATING FOR WAXMOTHS

Will you please advise me the best fumigant, with method of using, to prevent wax-moths from webbing over the honey?

I had quite a bit of trouble last year, and they have commenced again this year. I keep my honey in a dry, dark basement, marketing it in the spring, and of course the webbing over of the honey is very objectionable.

NORTH CAROLINA.

Answer.—The cheapest fumigant to kill moths is sulphur, or brimstone. It is the same material as is used to fumigate rooms where a patient has been sick of some contagious disease. As it is cheap, you do not need to stint yourself on the amount to be used. It is to be burned either in the room where the honey is placed, or, if in small quantity, under the pile of supers

or crates containing the honey, but in the latter case it must be far enough removed from them so that the heat of it will not damage the comb. Using a pile of a couple of hives without frames under the supers would be sufficient if the quantity of it is small. If burned in the room, the room must be kept shut for a day or two. This usually kills also all the flies and other insects in the room.

Your method of keeping the honey in a basement is not very good, unless the basement remains very dry, which is not usually the case. We prefer a dry attic.

If it is likely that there are eggs of the moth in the supers, you should fumigate at least twice inside of a couple of weeks, to kill the young larvae after they hatch.

LAYING WORKERS

In the June issue of your magazine, reference was made to laying workers. It was my opinion that workers never laid eggs. Can you give me some information on this point? If the workers are not sterile, how can their eggs be fertilized so that they may produce a queen? Can you give me a reference to any authority on this subject?

MICHIGAN.

Answer.—What I am about to state to you is all facts, proven by scientific and practical evidences.

The worker bee is an undeveloped female, but in some cases they are able to produce from a few eggs to several hundred, while the ovaries of the fully developed female or queen produce hundreds of thousands. When a colony is queenless some workers may develop a tendency to lay eggs, but as a worker can never mate it follows that her eggs only hatch as males or drones.

The fact of some insects being able to lay eggs that will hatch without previous fecundation is called "parthenogenesis." This is a peculiarity or privilege of the honeybee and was discovered by Dzierzon. If by some accident a queen is unable to mate within the first three or four weeks of her life, she loses the desire to mate and begins to lay eggs. But these eggs all hatch as males or drones. The same is true of the worker bee whose ovaries are at all developed.

These matters are facts and are taught in every textbook which gives the natural history of the honeybee. I urge you to secure one and read it.

SHAKING BEES ON FULL SHEETS OF FOUNDATION

I note your direction to "Iowa," American Bee Journal, page 477, September issue, to shake the bees on empty frames with only starter in them, then, after two days, shake them again on full sheets.

Would like to know why not the full sheets first, as is recommended by Dr. Phillips and as has been done so successfully.

COLORADO.

Answer.—Taking Farmers' Bulletin 1084, by E. F. Phillips, you will find on page 11: "The new frames should contain strips of comb foundation from one-fourth to one inch wide. Full sheets are not desirable."

It is true that it has been recommended, at different times, to shake the bees at once on full sheets. But as they sometimes store some of their contaminated honey in them, the remedy has not always proved sufficient. So we recommend to shake the bees on starters and a couple days later, after they have used up their honey, shake them again on full sheets. If you are afraid that they will swarm out, keep the queen caged for a couple days after the second shaking.

It is well to be exceedingly careful, and some are even advising, when diseased colo-

nies are discovered towards the end of the season, to burn them up. But if you starve them thoroughly before hiving them on clean combs, you will run but very little risk.

BEES BALLING QUEEN

I am writing you to know if you can give me some reason why a full colony of bees will ball their own queen. I have two or three colonies that will ball their own queen, then they will build new cells and they will ball the cells and tear them down and they start over a new cell. I have tried to introduce a new laying queen with these queenless colonies, and they would ball them and they would jump right onto the laying queens and kill them out as fast as I would try to introduce a new one. I will certainly appreciate any good answer you may make on this subject.

ALABAMA.

Answer.—I have seen bees ball their own queen, but it was only when there was some robbing going on in the apiary. They mistake the queen for a stranger, I suppose. As to their destroying their queen-cells, I don't know; never saw it. Queens that you introduce, to a colony that is queenless, must be introduced by caging them in the hive for a couple days, then release them by letting the bees eat their way to them through candy or a piece of comb honey. There is very little danger then.

EXTRA HIVE SPACE IN WINTER

I lost all my bees last winter, except one strong colony. I want to save them for increase next spring. Having so many Jumbo hives full of honey, I gave this colony four hives for wintering. They are all double walled. I also use double bottoms and gable roof covers. West Milton is three miles south of latitude 40. Do you think it is safe to let them winter in four hives?

OHIO.

Answer.—If they are very strong they may winter all right in that large space. But I would prefer to have them in ten well filled combs with the space above filled with absorbents; then give them extra space in the spring as they need it.

A double wall hive colony, if well stocked with bees, ought to winter well, if it has enough stores.

OPEN ESCAPE HOLE FOR WINTER

1. Would like to know if you think it would be any advantage in wintering bees to remove the bee escape from the inner cover and put cloth over it. Would burlap be all right to use?

2. Do bees that are in Jumbo hives need a shallow super of honey for winter?

IOWA.

Answers.—1. Of course I would remove the bee escape board for winter in any case. Putting burlap or even light cloth over the brood combs, with some absorbents, such as forest leaves, or bags of sawdust, or chaff, is very good.

2. If a Jumbo hive is fairly well filled with honey, say from one-half to two-thirds of the depth of the combs, on an average, there will be no need of a super of honey above.

AMERICAN VS. IMPORTED ITALIANS

1. I have bought Italian queens from two breeders. They are great honey storers, but seem to be cross. I think they have bred them too much for yellow color, and not enough for gentleness.

2. Do you think Italians imported directly from Italy would be any gentler and as good storers?

3. Could you send me the address of some reliable breeder in Italy?

4. Do you know if there is a good fall honeyflow along the Mississippi between Iowa and Wisconsin?

OHIO.

Answers.—1. It is quite probable that those very light yellow bees have some Cyprian blood in them. That is what makes them yellow and cross.

2. There is no doubt that the Italian bees of Italy, when properly handled, are gentler than our common blacks or the bright yellow bees mixed with Cyprian.

They are excellent honey gatherers. I believe that, after a few generations, they lose some of their qualities, in this country.

3. Two of the leading breeders of Italy are Enrico Penna, of Bologna, and Gaetano Piana, Castel San Pietro, Emilia.

4. Wherever there are lowlands, in the localities that you mention, there is a good chance for fall crops.

UNITING BEES WITH HEALTHY COLONY AFTER SHAKING

I found a few American foulbrood cells in one of my hives. Can I shake them in an empty hive for a day or two and then unite them with another colony this fall yet?

KANSAS.

Answer.—It is rather late in the season to unite bees, but as you are farther south than we are, you may have weather sufficiently warm to do it.

Shake the bees carefully into a clean hive, leave them in it for forty-eight hours; cage the queen, unless you keep the colony

shut in. This is to prevent their absconding. After the two days, feed them some sugar syrup, so they may be welcome in the other hive. Then shake them into a super, or place the hive containing them above the other, with a sheet of newspaper between.

WINTERING QUEENLESS COLONY

I did some requeening late this fall and one of them died in the cage before being liberated. It is a good, strong swarm, and plenty of honey. Do you think they would go through the winter and be all right for next summer if I requeen early in the spring? Or should I risk trying to get a queen from the South now? ILLINOIS.

Answer.—If the colony is fairly strong and well supplied with honey, it will most likely winter all right. Give them a queen in spring as early as a southern shipper will consider it safe to ship a queen and will guarantee safe arrival. Ordering a queen now would be at your risk and would probably be a failure when it came to introduce her.

Can Hive Insulation Be Excessive?

By E. F. Phillips

In the October issue (page 523) an illustration is given of two colonies prepared for winter in New York state, showing bees hanging out in zero weather. The picture does not show the zero weather, but there is no reason for questioning that. From the behavior of the bees the explanation is given that the hives were too heavily insulated and that this is the cause of their poor wintering. Since this is a New York state case, I should like to correct this error.

The insulation given was four inches on the bottom, four to eight inches on the sides and eight inches on top. This is not an excessive amount of insulation compared with what one often sees in apiaries in New York state, where the bees do not hang out in zero weather or even at 50° F., so it appears that another explanation is demanded. The insulation of the hives (not of the bees) may be accepted as moderately satisfactory, not excessive, merely on the basis of common beekeeping practice. No packing case was used, and if a well built packing case had been provided the effective insulation would have been increased.

If this illustration had been published without explanation, only those who are rather familiar with bee behavior in winter would have been able to explain the abnormal behavior of the bees, but the facts happen to be given, which should enable any beekeeper to explain it. The only reason for giving the explanation then is that perhaps many will not take the trouble to figure out the erroneous explanation for themselves. The bees were given "solid combs of honey in the fall." If the owner desired to give them this amount, which the best beekeeping practices demand, he found it quite

necessary to fill the single hive bodies. Where then were the bees supposed to spend the winter? Bees form their winter cluster normally on empty cells, and lacking these, they cluster as best they can below the frames. When this scant and unsatisfactory space is filled they can go nowhere other than outdoors.

Being thus exposed directly to outside cold without insulation, the bees raised the cluster temperature, and in zero weather their cluster temperature was doubtless at least 93° F. This demanded heavy consumption of honey. Gradually they would be able to eat the honey from the lower parts of the combs near the entrance and thus gradually they could take advantage of the insulation provided, but by this time the damage was done. Nothing is said about brood rearing during winter in these colonies, but one can safely assert that they began to rear brood as soon as any cells were available, since unprotected bees do this regularly. Excessive heat production from a total lack of protection and brood rearing in winter explain the heavy consumption of honey and the weakening of the colonies, and it is a matter of surprise that any of the bees were left in the spring.

Temperature records made of a colony with fully four times the effective insulation given these colonies did not show high temperatures within the hive, and as a matter of fact the heavier the insulation, the lower the hive temperatures in normal colonies. The cause of this hanging out was not excessive insulation, for hundreds of colonies equally well insulated do not behave in this manner. Nor was the cause too much honey, for again hundreds of colonies winter well with such an amount. The cause was obviously, from the

data given, a lack of room for the formation of a proper cluster, and this is told by the illustration without any further evidence.

To assume that the bees became too warm inside the hives thus moderately insulated is scarcely satisfactory, for they were not insulated at all when outdoors. Such an assumption can be made only if it is first assumed that bees at all times generate heat and, in short, that they maintain a body temperature higher than that of the air surrounding them. There is not a single authentic fact about bees which allows such an assumption.

Further Questions About Granulated Honey

By Dr. R. J. Goss

The attention paid my claims about granulated honey, page 297, *American Bee Journal*, June, from so distinguished men as Dr. A. C. Burrill and Mr. James I. Hambleton of Washington, in your September number, page 481, reminds one of the statement, "Just criticisms from able men usually indicate how far a man has progressed," and I feel highly honored that so able men have noted my humble efforts.

If the gentlemen will refer to my article again they will see that I referred not to honey as an article of commerce, but a particular kind of honey—i. e., honey taken from brood frames.

I should like to ask the gentlemen referred to a few questions:

1. To what particular quality of honey (as prepared by the nurse bees) commonly called royal jelly do you attribute the marvelous growth of their young? This refers to weight and otherwise rapid development.

2. Do you know what is the effect on the progeny of the queen when the bees are compelled to feed their young on honey heated to 160°?

3. What prevents the bee from having diabetes or carbohydrate poisoning?

4. What prevents the bee from having rachitis?

5. Will they develop symptoms of rachitis and diabetes if only heated honey is available for their use in feeding their young?

I am not asking these questions with the idea of starting a controversy, but with the idea of finding out how far these men have actually experimented in this field, and I will say in passing that it is my hope, which has been deferred for three years on account of ill health, to be able within a few months to make a report covering all the questions in these preliminary articles, backed by scientific proof that will be accepted by all scientists.

The Poison of the Queenbee and of the Worker

By Dr. Brunnish, Reuchenette, Switzerland

IT is a strange fact that the bee, which produces in its body a strong poison that causes, on higher animals, pain and inflammation, is itself most susceptible against this venom. The essential part of bee poison is a very powerful albuminous toxine, like the poison of the cobra; the accessory formic acid, on the other side, has no other effect than pain. While the bee loses its sting, in the skin of higher animals, it does not, when it has stung its equal or a queen. The cause is that our skin, for example, is elastic and encloses the sting with its barbs, while the chitinous substance of the bee's tegument gets a **gaping hole** which permits the bee to withdraw its sting safely (as a rule, but not always). When the bee lets only the sting enter, with the **adhering ganglion** (which still controls the movements after the sting is separated from the bee body), it can still live hours or even days. Not so when a part of the bowels is lost; it will soon die.

When a bee is stung by another, it does not, as a rule, die immediately, but it is in most cases unable to fly, and therefore it will soon die. All of us have often seen bees drag themselves on the alighting board, one or more legs paralyzed. These bees are generally robbers which have been stung by the guards of the hive. Consequently the sting of a bee to another is not mortal at once. It is singular that it is not the same with a **queen, stung by a bee**. In our nuclei boxes, which have a single comb and glass on both sides, I have often observed how an unfertile or fertile queen has been stung by a worker. I never saw that a queen was stung in the abdomen, only once I noticed that a queen was stung in the head; in all other cases the sting was applied into the thorax of the queen.

The effect of the injury can be established at once: the queen which has been stung **loses almost immediately the command over one of her members**, be it one of the legs, be it a wing. If one would look over all the queens of any bee yard closely, one could observe that one or another has a lame leg, or the position of the wings is not normal. This queen has been stung! Several times I saw how a queen had been stung by a worker. This happens exceedingly quickly, but just as quickly I saw that the queen had a stiff leg. Only twice or thrice the sting of the bee remained in the chitinous harness of the queen, and I was obliged to draw the sting out with the finger. A great many of

the stung virgin queens mated and lived for years. It happens also that one leg of a queen is mutilated, a joint or even more of the leg is missing; but never could I see how this happened. I suppose that in **balling the queen** the bees were able to cause the truncation. I once saw a queen which had a **single sound leg**; the others were lame or de-truncated. It is easy to understand that this queen could only creep gently and that her oviposition was deficient. It is my firm conviction that by far the greatest number of all queens which were lost by superseding did not **die by one or more stings, but by being balled**. I observed bees which balled their queen for two full days, till she died.

Never did I see a bee sting a drone; the bees have more commodious and cheaper means to get rid of the superfluous eaters. They drive them to a dark corner of the hive and do not allow them to eat honey. I suppose that the bees, only by no longer giving albuminous materials to the drones, starve them to death. Others drive the drones out of the hive and do not allow them to re-enter.

The queen has a sting as well as the bee, but it is not straight; it forms a slight curve and its barbs are not as sharp. For this reason she has less difficulty to withdraw her sting after having used it. In the literature I have read of two cases where a queen stung a man in the hand. It caused a sharp aching, but the sting did not remain in the wound.

I think it was about six times that I could observe in one of my glass boxes how a freshly introduced unfertile queen rushed onto a young bee or drone and stung it. Every time the poor unsuspecting assaulted died immediately. It is almost incredible how quickly the queen is able to kill a presumed enemy; it is as if the latter succumbed by an apoplectic attack, be it a drone or a worker bee. Once I had formed a nucleus with a queen excluder to prevent the entrance of drones. By unskillfulness it happened that a drone could enter. I was angry, because I could not allow a drone to be in the nucleus, but I had not the time to catch it. Therefore I introduced the queen and decided to catch the drone later on. Observing the royal intruder, I saw that she perceived the drone. She ran against him and clutched with her mandibles one of the hind legs of the drone. There began a wild chase of drone and queen across the comb, till both disappeared between the frame and

the sidewall of the box. A few minutes afterwards I found the drone dead on the bottom. The queen had killed the drone, and very glad was I. I suppose that this mood of the queen is an error of instinct, the queen believing the drone to be a rival.

Huber has described minutely the battle between two unfertile queens. For my part, I did not make similar experiments. I had no occasion to observe one sting another queen or worker, but I believe that fertile queens do not willingly use their stings and are little aggressive.

Louisiana Beekeepers Get Publicity

There has come to our office recently a full-page feature article from one of the largest New Orleans daily papers, giving some publicity to the reclamation work which the Louisiana State Beekeepers' Association and the Department of Agriculture are jointly doing in an effort to help beekeepers replace the losses they had during the flood.

The article gives feature photographs of Mr. Jes Dalton, who has charge of the apiaries that are being rebuilt and will be distributed, Mr. Charles W. Quinn, who is carrying on the queen-rearing operations, and Dr. L. Spencer, on whose farm the operations are being carried on.

The article is especially desirable from the fact that the feature material is all exact, and it is giving publicity to honey and to bees as well as to the very good work being done by these people.

Nor is there failure to mention the fact that this work is helped by cooperative efforts of beekeepers in many distant parts of the United States, who have been so willing to help with equipment, cash, and in other ways.

After School Lunches

The baking industry is pushing the idea of after school lunches for growing children. Many physicians believe that too long a period elapses between the noon lunch and the evening meal for growing children. Bakers are taking advantage of this fact to encourage a lunch at 4 p. m. "Bread and Jam" are featured as a desirable lunch for this extra period. Why not "Bread and Honey"? If we beekeepers can hitch onto popular movements of the day, we can readily establish a demand for our product which will insure the prosperity of the industry.

I Sing the Humble Bumblebee

By A. W. Macy

NOBODY loves the bumblebee. Very few people even respect him. He is generally regarded as a pest and a nuisance, a thing to be put out of business as often and as completely as possible. The aversion to him is hereditary and unending.

The reason for this intense and widespread hostility is not clear. It does not seem warranted when all the facts are considered. It certainly is not reciprocated by the bumblebee, for unless he is disturbed, and thinks himself imposed upon, he is peaceably inclined and accustomed to minding his own business. To be sure, he defends himself vigorously when attacked, but is he to be condemned for that? Do not even human publicans the same?

The bumblebee has always been overshadowed by his diminutive relative, the honeybee, in human estimation. This is chiefly because the latter is considered the more useful to man. Her manufactured product is delicious to his palate, and is therefore highly valued by him. That of the bumblebee is coarse and unpalatable, and therefore to him it has no commercial value.

The bumblebee is at a disadvantage in other ways, also. He is big, awkward, ungainly and somewhat slovenly, in sharp contrast to the honeybee, who is neat and trim in her person, graceful in her movements, and nimble on her feet and wings. And she is credited with being more intelligent; at any rate her intelligence, or instinct, if we prefer to call it that, appears to be of a distinctly higher order.

One sometimes wonders, however, whether the intelligence of the honeybee is not over-rated. That she is shrewd in certain direction is conceded; but in others she seems hopelessly dull. In her long experience at honey-making, for instance, covering thousands of years, it seems never to have dawned upon her that she is making it, not for herself, but for somebody else. One would think that man's activity in supplying her with fine houses in which to live and work, and with ready-made comb foundations, would have led her long ago to suspect that his good offices in her behalf are not altogether altruistic. Yet she goes on year after year making tons and tons of delicious honey, totally oblivious of the fact that man appropriates the great bulk of it to his own use right under her unsuspecting nose. Whether the bumblebee could be as easily and as everlastingly befooled under similar circumstances has never been put to the test.

Of the fourteen different varieties

or families of bees, only these two, the bumble- and the honeybees, have the social instinct and live in communities. All the others nest singly. The bumblebee and the honeybee communities differ greatly in size. A colony of bumblebees usually numbers 200 to 300 individuals, rarely more than 500; whereas a society of honeybees may have 30,000 or 40,000 members.

A community of bumblebees is not nearly as well organized as one of honeybees. The bumblebee is a rather slovenly housekeeper. The nest is a slipshod affair, usually located underground, sometimes in the abandoned burrow of a small animal, sometimes in the deserted nest of a ground bird or a field mouse. The honey cells are roundish oval, differing in size and having no orderly arrangement.

In one respect the bumblebees are more civilized, if we may use that term in this connection, than are the honeybees, and it is vastly to their credit: The females do not try to destroy one another, as do the queen honeybees, but live together in harmony.

Bumblebees, like honeybees, are very industrious folk. On fine spring and summer mornings the workers are up and away at daybreak, skimming over gardens and cultivated fields, skirting along fence-rows and river banks, dodging through underbrush—anywhere, wherever there may be a chance of finding nectar-yielding blossoms—daffodils, columbine, briar roses, red clover and dozens of other flowers which instinct tells are suited to their needs.

About two hundred years ago a German scientist claimed to have discovered that in some bumblebee colonies two or three members serve as trumpeters. They are provided, he said, with tiny bugles, or trumpets, with which they arouse the workers at daybreak. This, however, has not been confirmed by modern scientists, and probably must be set down as apochryphal.

Very few poets have sung the praises of the bumblebee, and only one adequately. Emerson may be regarded as their poet laureate. He sings delightfully of this "yellow-breeched philosopher," this "animated torrid zone," this "zig-zag steerer, desert cheerer," this "rover of the underwoods" who goes "singing over shrubs and vines" while at his task of gathering nectar for his honey-making.

But the best thing yet remains to be said about the bumblebee, something that does him more credit than all else, that places him among the

real industrial workers of the world. And that is this: It is due to his cooperation that our farmers are able to raise such abundant crops of red clover, for he it is who gathers the nectar of the red clover blossoms, and in doing so distributes the pollen, thus causing the plants to become fertilized. Honeybees are all right for white clover, but they can do nothing with the red. Only the bumblebee, with his long tongue, can reach the bottom of the tubular flower.

We realize the importance of this when we consider, as was stated in a recent government bulletin, that red clover is the most important clover in the United States, and that it is the key crop in any rational rotation system in this country.

For many years all efforts to raise red clover in Australia and New Zealand were unavailing. Nothing was accomplished until some colonies of bumblebees were imported and acclimated, and now they have abundant crops of red clover every year in those countries.

So the next time a big, burly bumblebee blunders into your room by mistake, booming like a small cyclone in a teapot, and nearly battering his brains out in his frantic efforts to escape through a window-pane, don't kill him, but help him to regain his liberty, for he has important work to do, not only for himself, but for you. Remember, too, that he has, oh, so little time in which to do it—just one brief season. Only the queens survive the winter.

California.

(When our correspondent thinks that the intelligence of the honeybee is over-rated, let him stop and think of the intelligence of the human being. Is it not over-rated? How does it happen that they are all fighting one another, when they claim to follow the "love your neighbor" doctrine of Christ? If some inhabitant of a distant sphere could see us constantly armed and constantly ready to fight, would he not wonder whether we have sound sense or whether we are "hopelessly dull"?—Editor.)

Owner of Bees

Dr. E. M. Adams' car was parked on Center street, east of the Hoobler block, on Monday morning, when a swarm of bees came along and lighted on one of the wheels. Frank Schramm, who clerks at the Shanbrook hardware store, produced a nail keg, and the queenbee led the way into the new home. By common consent, Mr. Schramm was awarded the prize.—Gridley, Ill., Advance.

Meetings and Events

Ontario Winter Meeting

The Ontario beekeepers' forty-eighth annual convention will be held in the Prince George Hotel, Toronto, on Tuesday, Wednesday and Thursday, November 22, 23 and 24, 1927. The executives have decided on these dates to take advantage of the reduced railway fares which will be available for the Royal Agricultural Winter Fair. The fair will be open from November 16 to 24, so that all beekeepers who are interested in any form of livestock will have the opportunity of attending both events.

Subjects of extreme importance to all those keeping bees will be discussed and a number of prominent authorities from across the line, as well as Ontario's best, will be among the speakers. Among the subjects will be found: "A Study of the Cause of Fermented Honey," "Economy of Manipulations to Reduce Costs," "Purchase of Package Bees vs. Making Increase" (this will be discussed by two speakers, one favoring packages, the other increase), "Preparation of and Wintering Bees," "Value of the Queen in Honey Production," "The Value of Nuclei to the Commercial Beekeeper," "Destruction of Pests in the Apiary," "Comb Honey Production," "Some Features in Queen Rearing," "Poultry and Bees from the Poultryman's Viewpoint," "Future of Beekeeping," "Honey Vinegar," "Vegetable Growing, Horticulture and Bees from the Horticulturist's Viewpoint."

The program will be seen to be varied, and includes vital topics, the discussion of which cannot fail to be very profitable to all in attendance.

Beekeepers are all cordially invited to attend. We need your presence and you probably need some of the information which will be available.

F. Eric Millen, Secretary.

Oregon Meeting

The Oregon State Beekeepers' Association will hold their annual meeting this year at Hermiston, Oregon, November 17, 18 and 19. Many beekeepers of prominence of the Northwest have already indicated their intention of being with us, and the prospects are that we will have a very interesting and profitable program. Beekeepers from eastern Washington and western Idaho are invited to meet with the Oregon beekeepers. It is hoped to make this a real roundup of Northwestern commercial honey producers, and time will be provided for ample discussion of all important subjects related to honey production in the Northwest. The Umatilla Beekeepers' Association

is cooperating with the Chamber of Commerce at Hermiston and some worthwhile entertainment features will be added to the program, one of which will probably be a jack-rabbit drive on the Sunday following the meeting.

H. A. Scullen, Secretary.

Oklahoma Bee Men Organize Association

The beekeepers of Oklahoma met at Oklahoma City on September 26 and organized a state association. The meeting was attended by a good crowd and the following officers were elected:

President—W. C. Sawyer, Lindsay.
Secretary—A. B. Jones, Bethany.
Vice-President—H. W. Horn, Oklahoma City.

Reporting Editor—Eugene Holloway, Marietta.

The officers will meet in Oklahoma City on October 14 to arrange the program for the regular meeting of the association, which will be held in January of next year.

The association is planning a big drive for membership. Mr. Kenneth Hawkins, of the G. B. Lewis Company, will give a prize of \$25 worth of Beeware to the member getting the largest number of new members by the time of the next regular meeting in January. So get busy today and win the prize.

Louisiana Bee Meeting

On November 14 and 15 there will be a meeting of the Louisiana State Beekeepers' Association in New Orleans, headquarters Hotel Monteleone.

At this meeting matters of unusual interest to beekeepers throughout the United States will come up; and the Louisiana association takes pleasure in inviting all interested parties to attend.

There will be discussion of our flood relief program, and artificial fertilizing of drone eggs so that queens may be raised from them will be performed by Mr. Charles W. Quinn, formerly of La Belle, Fla., and demonstration of hand mating of queenbees by Mr. Harry Laidlaw, Jr., will be given.

For further information address Dr. Lewis Cass Spencer, Orleans Parkway, R. F. D. No. 2, New Orleans, La.

Jess Dalton, Secretary.

Iowa Convention at Ames

Secretary Paddock writes that the Iowa beekeepers will meet at Ames on November 17 and 18. This is the first time the convention has been held at Ames for eight years. The dates have been arranged to permit

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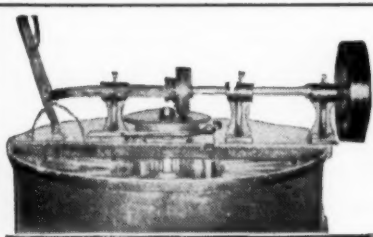
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parents to visit with sons and daughters who are students, over the week end. A representative of the Kellogg Company is expected to appear on the program.

The Iowa State College of Agriculture is one of the great institutions of its kind, and a visit is well worth while. The chance to visit the college and attend the convention on the same trip is too good to to miss.

Good Meeting in Maryland

A meeting of the Maryland State Beekeepers' Association was held at Somerset on October 1. This meeting was well attended, the principal address being made by Mr. E. L. Sechrist, who stressed the importance of the U. S. grades and the educational value of honey exhibits at state fairs.

Mr. Hambleton spoke briefly of the meeting of the International Entomological Conference at Ithaca next summer, stating that arrangements would probably be made to have a bee program as part of the convention.

An opportunity was afforded the beekeepers to examine the many interesting projects under way at the laboratory.

Western Winter Bee Meetings

The final schedule of the annual conventions of the state beekeepers' associations for the intermountain states now stands:

Thermopolis, Wyoming—Noon December 1 to noon December 3.

Billings, Montana—December 5 to December 6.

Pocatello, Idaho—December 8 to December 9.

Salt Lake City, Utah—December 12 to December 13.

Grand Junction, Colorado—December 14.

Monzanola, Colorado—December 16 to December 17.

C. L. Corkins, Secretary.

Wisconsin Convention

The forty-ninth annual convention of the Wisconsin State Beekeepers' Association, Inc., will be held December 8 and 9, in the City Auditorium, at Milwaukee, Wisconsin.

The board of managers' meeting will be held the evening of the seventh, in the Auditorium.

It is expected that considerable discussion will develop in connection with the future work of the new specialist in marketing.

Central States Exposition

Competitive exhibits of honey will be a feature of the biennial Central States Horticultural Exposition to be held at Kansas City, Mo., November 28 to 30. Twenty-five hundred

dollars in cash prizes are offered at the show in the three divisions of honey, apples and potatoes.

This exposition should not be confused with the Mid-West Horticultural Show, which is held every two years at some point in Iowa. The two do not conflict, since they are not held in the same year.

Those interested should write to the secretary for premium list. The address is, third floor, K. C. A. C. Building, Kansas City.

Central New York Meeting

John H. Cunningham, secretary of the Central New York Beekeepers' Association, writes that the fall meeting will be held on November 25. An effort will be made to secure good speakers, and a large attendance is expected.

Details Concerning Boy Scout Merit Badge In Beekeeping

In the August number I notice a small item about a Boy Scout merit badge in beekeeping, which says that the badge is given for producing a certain number of pounds of honey from one colony of bees.

For fear that there might be some misapprehension relative to the requirements should some boy from a nearby town or city apply to a beekeeper to sign his application, I would like to say that there is much more to be done. The exact requirements are as follows:

1. Examine a colony of bees, remove the combs, find the queen, and determine the amount of brood, number of queen-cells, and the amount of honey in the hive.

2. Distinguish between the drones, workers, eggs, larvæ, pupæ, honey, wax, pollen, and propolis; tell how the bees make honey and where the wax comes from; explain the part played in the life of the colony by the queen, the drones and the workers.

3. Have had experience in hiving or artificially dividing at least one swarm. Explain the construction of the modern hive, especially in regard to the "bee spaces."

4. Put foundation in sections and fill supers with sections and also remove filled supers from the hive and prepare the honey for market.

5. Write an acceptable article of not more than two hundred words on the differences in honeys according to the flowers from which the nectar is obtained.

So you see there is a good deal more than a race to see who can obtain the most honey from a single colony.

The primary idea behind merit badges, of which there are some seventy-three, is that the boy has

an opportunity to come in contact with as many occupations and phases of life as possible. In this way he can survey and find perhaps his life work, without blindly following some "blind alley." In addition to all this, he gathers a large fund of knowledge at a time when his mind is most active.

I am a "back lotter" myself, and know that any local Scout headquarters would be glad to have some of the many beekeepers volunteer to give just a little instruction and become the official examiner in the "beekeeping merit badge."

P. B. Weaver,
Ass't Scout Executive.

John "Honey" Jones Passes On

Moscow, Idaho. — John "Honey" Jones, 91, picturesque old pioneer of the St. Joe country, is dead. His body has been laid to rest in a grave he dug ten years ago within a stone's throw of the house in which he lived for forty-seven years. Jones gained the name of "Honey" through his bee-raising activities of many years ago.

As a trapper and beekeeper, he gained his livelihood and amassed a comfortable fortune. The aged man, whose flowing white beard extended to his knees, was perhaps the best known and most loved of all the beekeepers of the district.

At one time he had hundreds of hives at his scenic mountain home. One of his peculiar beliefs was that where anyone lived, there he should be buried. In his own life he carried out this belief, and, at his own request, he was buried in a hillside grave overlooking his loved St. Joe River.

Grading Stamps

Those who have use for it will be glad to know that the Bureau of Entomology has arranged for a uniform stamp for showing the various grades of honey as approved by the government rules. This may be used as a rubber stamp, or printed labels of the same design may be used if preferred. Arrangements have been made by the department with the contractor who supplies rubber stamps for the government to supply these with cushion pad for 27 cents each, with 10 cents additional for postage.

The stamp reads, "United States Standard," and is followed by the name of the grade and the net weight. Further information may be had by addressing J. I. Hambleton, Bureau of Entomology, Washington, D. C.

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Honey, Part of the Religion and History of Man

By J. R. Kennedy

FROM the beginning, the most important tooth in the mouth of man has been his sweet tooth, not his wisdom tooth. It is the first tooth he cuts as a babe, and the last one he loses in old age. The love of sweet things abides with him throughout his days on earth, and he carries it with him to the grave. Consequently, honey has always occupied an important place on his table, and has been through the ages one of the staples of his food. So important in the eyes of some people is honey that it is offered to the gods, and the bee is regarded as sacred, as in Egypt and by several tribes in Africa. Before the introduction of sugar, honey was used to sweeten the beverages of many people, and its use in the making of cakes is well known. In India, honey has a prominent place as a means of remaining in good health, and as an omen of good luck it is dropped on the tongue of the new-born babe. Good beer can be made from honey, and all are familiar with its use in the making of sweetmeats. The chief attraction of the Promised Land to the ancient Israelites was that it was a "land flowing with milk and honey." To the writer of the Psalms the words of Jehovah were "sweeter than honey and the honeycomb." The remembrance of a good man is "sweeter than honey in the mouths of all."

A drink resembling mead was composed of wine, honey and pepper. Honey beer or honey wine is commonly drunk by most of the tribes of South and East Africa. In Nigeria, honey and millet is drunk by the natives. The Egyptian made a sweet beer from honey, and the heroes of Homer drank a liquor of which honey was the chief ingredient. The Roman Mulsum, the Russian Lipetz, and the Clary and Bragget of medieval England are beverages in the composition of which honey was used.

As an article of diet the Jews used honey as a relish mixed with curdled milk, and it was also used to sweeten their cakes. The Greeks used honey in the making of cakes which were eaten as dessert, while the Pythagoreans are said to have lived on a diet of bread and honey. John the Baptist existed in the wilderness on locusts and wild honey.

At one period, in Egypt and Assyria, honey was used for embalming the dead. The body of a little child has been found embalmed in a sealed jar of honey. The body of Alexander was preserved by this method, and the great writer Josephus says that the body of King Aristobulus

was kept in honey until Antony sent it to the royal cemetery in Judea.

Honey was used by the ancients as a special ingredient in medicine. It played an important part in Egyptian prescriptions. Even Pliny mentions a long list of disorders that honey can cure. The Greeks believed that it prolonged life. Old honey was considered a cure for cough or bile, and was said to increase strength and virility. The Veddas regarded the good health they formerly enjoyed as due to the fact that at one time their diet consisted largely of honey. The Aki-kuyu medicine man mixed honey with a decoction of herbs which he administered in illness.

Honey is regarded in many countries as possessing power to drive away evil spirits or bad luck. At the birth of a child; on reaching puberty; at marriage, honey is used as a potent influence. In the ceremonies connected with birth among the Hindus of the Punjab, sweetmeats play an important part, and at one stage are passed round the head of the child for the stated purpose of driving away evil spirits.

In Croatia and Turkey a cup of honey is handed to the bride at the door. The Poles sweeten the bride's lips with honey. In the Balkans the bride and bridegroom eat together, in the evening, a cake baked some days before, which is dipped in honey as it is eaten. At Vlach weddings, the bride is given honey and butter with which to anoint the door of her house.

Honey is used in the ritual of many religions, chiefly as a symbol of purity. Milk-and-honey was used in the early Christian church to suggest consecration, while a portion of milk and honey was placed in the mouth of the newly baptized, in allusion to the name anciently given to Canaan.

The Hindus regarded honey as the food of the gods, and Vishnu was represented as a bee on the lotus leaf, while Krishna has a blue bee on his forehead. The stone gods in the temples are washed with a liquid of honey at certain times.

Many nations use honey as an offering to their gods. The discovery of a papyrus in Egypt proves this, for on it is written, in the form of a bill of sale, "16 cakes, oil, honey, milk, and every spice except frankincense, supplied to the Strategus of the nome for the sacrifice of the most sacred Nile." The date is the second century.

The first hives for the capture of bees, leading to their domestication, of which any record is made, were

made by the river people in East Africa. They were made in the form of a cylindrical box. Other people in Africa use a barrel for the production of honey, the ownership of which is established by elaborate brands of dots and strokes. The honey is taken by smoking the bees. The theft of honey is taken as a serious offense. A dead man's property consists largely of these barrel hives, which are carefully distributed to his sons after a paternal uncle has first taken some honey therefrom.

The modern beekeeper has a wonderful tradition behind his most intensely interesting occupation. He is producing, not only a food for his fellows, but a food of the gods.
Canada.

Destroying Moths, Larvae and Eggs

In L'Apiculteur for September, Dr. Cordier gives the formula for destroying moths, which, he says, is used in civil and military hospitals, prisons, barracks, ships, etc., to destroy bedbugs, lice, insects of all kinds, and even rats. But the formula is given in the metric system. Reduced to our antiquated English system, the formula calls for a little over an ounce of powdered sulphur to the cubic yard of space to be disinfected. To this they add about 15 grains of nitrate of potash and a little wood alcohol. This mixture is burnt on a metal dish or sheet-iron in a well closed room or closet. As it produces considerable heat, nothing must be put too close to the dish in which it burns. The space thus treated must be left closed for six or eight hours. It is guaranteed to do the work and kill even the eggs of the moths.

Area Treatment for Diseases

The state of New York has issued circular No. 325 to urge foulbrood eradication in the state by area treatment. The paper is endorsed by the officers of the Empire State Federation of Beekeepers' Cooperative Associations. It is a good move. Write to A. Gordon Dye, President, 18 Conklin Avenue, Rochester, N. Y.

Slocum to Cornell

B. A. Slocum, for some years extension professor of beekeeping in the Washington College of Agriculture at Pullman, has secured a leave of absence for one year to take advanced work in entomology at Cornell University. He also serves as Assistant in Apiculture for part time.

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George W. York, Editor

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American Bee Journal

Hamilton, Illinois

Advising the Editor

By Homer B. Turrell

WHEN one picks up a periodical, the first thing that attracts one's attention is the cover. Now it is especially desirable that first impressions be good, so too many pains can hardly be taken to have a magazine cover appear artistic and attractive. Plain black and white can hardly be depended upon to effect this; one needs the aid of the spectral colors, the complementary and contrasting tints and shades. A certain illiterate man said one time that he had been watching Mr. Brown chop wood and that he was much surprised at the ease and transparency with which he handled the ax—every blow seemed to go to a demonstration. Just so, every bit of black and white or color on the cover of a magazine should go to a "demonstration," not forgetting that the most graceful lettering can be improved with a fine colored border.

However, the cover, though important, is relatively only a small matter, for it is just the outer husk of the good things which should be found within; it is, of course, upon the reading matter contained that the periodical must depend for its popularity. In setting this matter forth, there are several things to be considered, such as the kind of paper, and type used, and the general mechanical make-up of the magazine.

The writer has in mind a periodical which runs to box-heads, detached paragraphs and comment and quotations inserted in different kinds of type. This magazine is almost unreadable for one who likes his literature undiluted. The other extreme is just as bad, for when one sees a solid page of unrelieved print staring him in the face, he thinks: "Well, I guess I'll turn over to where the dialog begins."

As to the paper used, of course, the editor must cut his coat according to the cloth. Elbert Hubbard used something like butcher's wrapping for the covers of his "Little Journeys" and made a hit with it; the main body of the book was made up of a cream-tinted paper which was very easy on the eyes and also durable. Wood-pulp paper is hardly ever white; it is either bluish white or gray-white; it is not as easy on the eyes as the cream-tinted paper. Highly calendered paper is more suitable for illustrations than the reading page on account of the light which is reflected from its surface.

When we come to the contents of the bee magazines, we find that they embrace a great variety of beekeeping subjects. If there is anything

wanting in variety, we would say that it is, perhaps, a lack of humor. Are bee men more serious than other people, or don't they have as much fun? Let us be like the half-tipsy auditor at the banquet who demanded that the speaker talk louder and funnier.

The bee journals are printing more advertising than they did five years ago, which is an indication of the prosperity of the industry. A periodical is better known by the kind of advertising company it keeps than it is by the reading matter. Most advertisements are friendly and help both the buyer and the seller, but there are others—well, yes, there are others.

Now let us see what the subscriber can do to help make a better journal. Perhaps the quickest way to help is to secure subscriptions for and send advertisements to your favorite periodical; but one can also help out by writing for the journals and, indeed, get paid for it. That is an attractive proposition and it is really our duty to take advantage of it so that the editors will have something to read—we must try to keep them amused and in good humor. Then, too, if they have a great amount of material to select from, they can make a more interesting magazine, even if they do not print our own pet effusions.

Mark Twain said he always got his facts first, then he could distort them to suit himself. Some allowance must be made in his case, though, for it will be remembered that he was first a newspaper man. Yes, Mark hung around the newspaper offices until he learned to smoke and, perhaps, to swear and tell tall yarns; so we easily see what evil associations will do for a man. Perhaps if he had had some good books to read while young, like Flavel's "Fountain of Life" and Baxter's "Saints Rest," Mark would have amounted to something and the world had been spared all the turmoil caused by trying to exclude Tom Sawyer and Huck Finn from the public libraries.

Indiana.

Farrar to Ames

M. D. Farrar has given up his work at the South Dakota College of Agriculture to take up some work at the Iowa College of Agriculture at Ames. Mr. Farrar is teaching in the Department of Physiology on part time and devoting himself to securing an advanced degree.

American Bee Journal

Vitality Or What?

By G. H. Cale

In the "Beekeepers' Item" for October, on page 318, "The Etiology of European Foulbrood," Hugh Miller, M. D., Kansas City, says:

"I desire to suggest a thought regarding the etiology of European foulbrood, that as far as I have been able to note has not been offered. It is this: The primary cause of this disease is that of malnutrition, and this malnutrition is the lack of vitality found in the sperm of old queens.

"We know that the mating of a queen takes place in the first ten days of her life, and thereafter she is prepared to fertilize eggs during her lifetime. During the early period of this time there is great vitality in the spermatozoa. At length this vitality recedes until we find that some eggs do not hatch and others are easily attacked by *Bacillus plauton* or other enemies. This reasoning is borne out by the fact that we know that we can overcome the disease by destroying the old queen in the hive and introducing a new and vigorous one, and that further it is seldom found in a hive containing a young queen." * * *

"I am simply trying to convey the idea that the prime predisposing cause of European foulbrood is the weakened sperm of the old queen, not able to resist the *Bacillus plauton*, or possibly other germs, while the sperm of the young queen is able to do so."

We are not in possession of all the facts about bee diseases. Further investigations may show that bees are able to establish an immunity against disease; but some colonies are able to resist disease better than others. There is much to support this belief now.

It may be that the vitality factor has an important bearing on the development of European foulbrood. If it has, time and research will prove it. If the vitality factor is a deciding one in cases of European foulbrood, it is difficult to see how it becomes expressed in our observed methods of treatment.

It is common to have colonies with European foulbrood in which the disease persists and bees seem unable to cope with it. The diseased larvae are left in the cells and only indifferent efforts made to clean them out. When these colonies are given young bees from other colonies and the queen is removed so she cannot lay for a time, the entire outfit takes on new life, and the cells are rapidly cleaned out and polished up, so when the queen is returned she will lay in cells from which the disease has been entirely removed. Is this "vitality" expressed in resistance, or in housecleaning?



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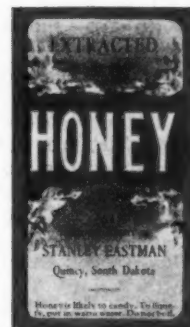
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American Bee Journal

Hamilton, Illinois

Crop and Market Report

Compiled by M. G. Dadant

For our November crop and market page we asked reporters to answer the following questions:

1. How is the final crop compared to 1926?
2. At what price in large lots is white extracted moving? No. 1 comb?
3. How is honey selling?
4. Will the crop move at present prices?

FINAL CROP COMPARED TO 1926

There has been no great change in the amount of crop compared to what was reported in the October issue of the American Bee Journal. If anything, however, the states reporting more than normal crop have increased their yield somewhat and are now in a better position. New Jersey was reported as having less than normal crop, which was an error, as the crop there was considerably more than normal.

We are giving composite of figures of those states reporting better than a normal crop this year, which are as follows: Maine, 150 per cent; New Jersey, 150 per cent; Maryland, 175 per cent; Pennsylvania, 100 per cent; Kentucky, 100 per cent; Tennessee, 100 per cent; Michigan, 100 per cent; Wisconsin, 140 per cent; Ohio, 130 per cent; Indiana, 200 per cent; Illinois, 200 per cent; Iowa, 150 per cent; Missouri, 200 per cent; North Dakota, 135 per cent; South Dakota, 120 per cent; Nebraska, 125 per cent; Kansas, 130 per cent; New Mexico, 200 per cent; Arizona, 100 per cent; Colorado, 110 per cent; Utah, 90 per cent. In the Canadian provinces, Ontario has about 125 per cent; Manitoba, 125 per cent; Alberta, 80 per cent, while the other provinces are practically normal.

All in all, even though the central western states and New Mexico, Arizona and Colorado are somewhat better than last year, still the total crop of the country is considerably less than a year ago; in fact the entire Southeast and South, including Texas, have had a very short crop. This, added to the fact that the biggest producing state of California, and also the northern intermountain territory have much less than a normal crop, would indicate that the total crop for the country, especially that part which is exportable, is much less than a year ago. Some of the states which range least in amount of honey production compared to last year are as follows: Vermont, 60 per cent; Connecticut, 50 per cent; New York, 90 per cent; Virginia, 50 per cent; Georgia, 40 per cent; Florida, 80 per cent; Alabama, 30 per cent; Mississippi, 25 per cent; Louisiana, 50 per cent; Texas, 60 per cent; Minnesota, 80 per cent; Idaho, 35 per cent; Montana, 40 per cent; Wyoming, 60 per cent; Utah, 80 per cent; Nevada, 90 per cent; Oregon, 60 per cent; Washington, 40 per cent; California, 30 per cent.

PRICES AT WHICH HONEY IS MOVING

Naturally, there have been a considerable number of carloads of honey which have moved at a price lower than is justifiable. I understand a few cars of white honey have moved as low as 6 cents, and there have been a number of cars at 6½ and 6¾ cents. The bulk of the crop, however, has moved so far at prices ranging from 7 to 7½ cents, and the majority of producers who still have honey on hand, we believe, are asking in the neighborhood of 7½ to 8 cents per pound for their honey.

The export figures show that the United States shipped out about six carloads more of honey for export this year during September than it did a year ago.

Texas seems to be having a price cut war, or rather a period of rather low prices, and many reporters are indicating that they believe the price will be 3 to 4 cents lower than a year ago, which was in itself not a very high priced year.

There have been some unusual yields in states of low production. This is true in Florida, where the whole state is usually slack, but some producers have gotten far larger than a normal crop. New York also has some producers with heavy crops in a section of otherwise moderately fair crops. The Southeast, however, is universal in reporting a very short crop this year.

The biggest section for price cutting, naturally, has

been the Middle West and the plains area, where the crop has been so successful compared to the average year.

We learn of honey moving at 7 cents per pound in barrel lots, with 7½ cents being paid for white honey in some instances. The 7 cent price was for amber honey.

It is not, however, in the jobbing price that the particular cutting takes place, but in the retail price. We learn of a small producer in Illinois selling honey in ten-pound pails at 10 cents per pound, all labelled. That is the selling price at which the grocer can sell it after having bought it from the producer, so that his price must have been in the neighborhood of 8 cents in cans. This phenomenally low price, however, is the exception, we believe, and we do not think that price cutting in the central markets is going to have any great effect on the larger centers, from the fact that it is impossible to pick up this honey in any large quantities or carloads to ship to central markets.

In the East and Central West, comb honey is moving at a price of about \$4.50 to \$4.80 per case. This is low compared to the prices demanded in some western sections, which are as high as \$4.20 per case, and range down to \$3.50.

HONEY SELLING

Although in many sections honey is moving very slowly, it is chiefly due to the industrial situations, or stagnation owing to the floods in the South, etc.

At any rate, we believe honey is moving much more readily than it did at this time last year in a retail way.

The fruit crop has not been excessive anywhere. In fact, in the Central West the fruit crop has been far below the ordinary volume, and as a consequence fruit is extremely high. Jonathan apples, for instance, in our own section, are selling in the neighborhood of \$3.50 per bushel retail. At such prices, undoubtedly there will be large numbers of consumers who will go to syrups and honey instead of purchasing fruit. In fact, the general reports are to the effect that there is not near the volume of jams and jellies and canned goods being put up this year in the fruit line as there has been in years past.

Although this has not yet had any great effect on the honey market, undoubtedly it will in the course of time, and we personally look upon the possibility of a strengthening of the market rather than a reduction in prices as the season advances.

California is placed in a rather peculiar situation this year—that is, there are many reports of honey moving there at higher prices than in the intermountain territory or Central West. Undoubtedly this is due to the very short crop and the fact that Californians are in a very desirable position when it comes to export shipment. For this reason, honey can be somewhat higher in California than in intermountain territory and still not cost the importer in Germany or other European countries any more than the central western or intermountain product.

Undoubtedly the honey will all be cleaned up in California shortly and it will be necessary to import from some of the states farther east.

WILL THE CROP MOVE?

It is very inspiring to note that almost universally, even in the plains area and central western sections, the opinion of the reporters is to the effect that the present crop will move without difficulty before the new crop begins. This is somewhat unusual, because in an ordinary year there are always some producers very dubious about the crop being moved before the new crop comes. Naturally, such an attitude on the part of the producer is bound to reflect itself in the price he asks for honey, so that this also gives us the idea that honey prices are apt to advance, rather than drop as the season advances.

The price-cutter is with us and always will be, but at the price at which honey is being offered this fall, undoubtedly the price-cutter's stock will soon be cleaned up, even though in many instances it may mean a reduction on the part of the better producer who wants to hold at a remunerative price, and not cut under his neighbor.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

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BEFORE placing your 1928 order for bees and queens, get our booklet giving prices, also explaining why bees ship better and give better results from this location than from many other locations.

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TESTED good quality three-band queens \$1.00 each during fall and winter months. I sell queens every month of the year.

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Peter Schaffhauser, Havelock, N. C.

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"SHE-SUITS-ME" QUEENS—Three-banded stock. None better. Untested queens from May 15 to June 15, \$2.00; after June 15, \$1.50. Introduction guaranteed.

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T. L. Davis, Buffalo, Leon Co., Texas.

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PETERMAN'S select Italian queens from sunny California: 1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00; 100, \$75.00. Safe delivery and entire satisfaction guaranteed.

H. Peterman, Lathrop, Cal.

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GOLDEN THREE-BANDED and Carniolan queens. Tested, \$1.00; untested, 75c each. Bees in 1-pound package, \$1.50; 2 pounds, \$2.50; 3 pounds, \$3.25. Safe delivery guaranteed. C. B. Bankston,
Box 65, Buffalo, Leon Co., Texas.

PACKAGE bees and queens. Charles Wallace, Box 35, R. 1, Glenn, Cal.

PURE ITALIAN QUEENS—The kind that pleases. Prices attractive. Guaranteed satisfaction or money back. Write Roy Weaver, Navasota, Texas.

LEATHER COLORED ITALIAN QUEENS—\$2.00; after June 1, \$1.00. Tested, \$2.00. A. W. Yates,
15 Chapman St., Hartford, Conn.

FOR SALE

FOR SALE—One 10-inch (Root's) foundation mill, very little used, \$15. About 400 24-pound, two-tier shipping cases in the flat, without glass (Lewis goods) at 17c each; 200 12-pound shipping cases at 13c each. L. & J. Seibrock, Mascoutah, Ill.

HON-E-NUT CHOCOLATES—Assorted packages and 5c bars. Send for descriptive and illustrated circular, free. Fairmount Apiaries, Schuylkill Haven, Pa.

REGAL LILY—Blooming size bulbs, \$1.00 per three, \$3.00 per twelve. Description and seed culture mailed to you for the asking. F. Danley, Macomb, Ill.

50 STANDARD hive bodies with frames, 18 covers, 12 bottoms, 6 section supers, 20 queen excluders; some foundation, all ten-frame. Practically new. Guaranteed free from disease.

Fred Pruim, Birnamwood, Wis., R. 2.

FOR SALE—500 colonies bees and equipment for comb, extracted or chunk honey, all in good standard eight-frame hives. Located in heart of sweet clover district of the San Luis Valley of Colorado.

L. W. Howsam, La Jara, Colo.

FOR SALE—My splendid apary business, consisting of 400 colonies of Italian bees, with equipment for 500 colonies. Modern equipment. State inspected and in good locations. O. W. Bedell, Earlville, N. Y.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn, odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.

Dadant & Sons, Hamilton, Illinois.

HONEY AND BEESWAX

FOR SALE—7,000 pounds clover and 7,000 pounds fall honey, mixed flowers, new sixty-pound cans, two to the case. Sample free. W. S. Earls & Son, New Canton, Ill.

WINKLER'S white clover honey in new sixty-pound cans at 10c per pound. Write for prices on lots. Sample 20c.

Winkler Honey Company, Joliet, Ill.

EXTRA FANCY white clover honey, packed in 2½'s, 5's, 10's and 60-pound cans. Comb by the case. Write for prices.

Irvin A. Stoller, Latty, Ohio.

FOR SALE—Finest quality clover honey. Lewis Klaty, Carsonville, Mich.

FOR SALE—Extra fancy white clover honey in new 60-pound cans, also comb honey. Martin Carsmoe, Ruthven, Iowa.

CHOICE clover honey in 60-pound cans; also comb honey in carriers of six or nine cases. Arthur Beals, Oto, Iowa.

FOR SALE—Fancy white comb honey in wood cases, glass front, \$4.50 per case, in six-case lots, f. o. b. Bellevue, cash with order. N. B. Querin, Bellevue, Ohio.

WHITE COMB HONEY—No. 1, \$3.60 per glass front case; extracted white honey, 10 cents per pound, delivered within fourth zone, packed in sixty-pound cans.

Marsalek Apiaries, Cadmans, Neb.

BASSWOOD HONEY—To close out, only \$4.75 per 60-pound can, in two-can lots or more. D. E. Lhommeieu, Colo, Iowa.

FOR SALE—Northern white, extracted and comb honey.

M. W. Cousineau, Moorhead, Minn.

FOR SALE—Fancy western Ohio white clover honey in new sixty-pound cans, 10 cents per pound. Twelve five-pound pails, \$7.75. Discount on large lots. Sample 15c.

Joseph H. Hoehn, Ottoville, Ohio.

COMB AND EXTRACTED HONEY—White clover. Sample 10c.

M. H. Lind, Bader, Ill.

YOUR BIDS CONSIDERED—One or more cases Sturdevant's Nebraska clover honey, extracted and comb. White. Stocked at Rochester, N. Y., also at home.

Stur-de-Vant, St. Paul, Neb.

CLOVER and light amber honey, finest quality, in any quantity. Old and new customers write me your wants. Prices right. Lee Horning, R. 4, Morrison, Ill.

FINEST quality clover honey in new 60-lb. cans and cases. Satisfaction guaranteed. Sample 15c. State quantity desired.

L. A. Thrall, Anthon, Iowa.

CLOVER and basswood honey, blended by the bees. Color white; body fine. Extracted and comb honey. Sample 15c.

W. A. Jenkins, Rockport, Mo.

WANTED—Honey, partly basswood or fruit bloom. Send sample and state price. J. K. Wolosevich, 2516 Archer Ave., Chicago, Ill.

CERTIFIED HONEY—Light color, excellent flavor and heavy body. Carload or case shipment. Write for prices and state quantity wanted. W. R. Perry Co., 1209 Howard St., Omaha, Neb.

FOR SALE—Buckwheat honey in new cans, \$8.50 case lots. Edward Hogan, Washington St., Canandaigua, N. Y.

FOR SALE—Fancy extracted white clover honey in new 60-lb. cans \$6.00 per single can; \$11.25 for two 60-lb. cans in case. Sample 10 cents. E. J. Baxter, Nauvoo, Ill.

CLOVER HONEY—For sale in 5, 10 and 60-lb. cans. Write for prices.

Henry Price, Elizabeth, Ill.

FOR SALE—No. 1 white comb, \$4.50 per case, 24 sections to case, six cases to carrier. Clover extracted, 10c pound; dark 7c. Two 60-lb cans to case.

H. G. Quirin, Bellevue, Ohio.

CLOVER, also buckwheat and clover blend in pails or cans. Samples free.

Henry Stewart, Prophetstown, Ill.

CHOICE clover honey, comb and extracted. Write for quotations. M. Larson & Son, Box 144, Gardner, Ill.

FOR SALE—Fine quality clover honey new 60-lb. cans.

Sundberg Bros., Fergus Falls, Minn.

WHITE CLOVER honey in 60-lb. cans, two cans to case, 9c per pound. Sample 15c.

Sylvester Legat, R. 1, Box 11-A,
Spring Valley, Ill.

NORTHERN white honey in new cans, clarified, no foam. Case, ton or carload. Sample 10c.

George Seastream, Moorhead, Minn.

FOR SALE—Water white sweet clover honey, North Dakota's best. Packed as desired. Victor Apiaries, Chaffee, N. D.

FOR SALE—Bee-Dell extracted honey in new 60-lb. cans. We solicit your business. Bee-Dell Apiaries, Earlville, N. Y.

FOR SALE—None better clover honey. Sample free.

M. W. Thompson, Toronto, S. D.

NEW crop white clover honey, not extracted until thoroughly ripe. Put up in sixties. Two to the case.

Frank Coverdale, Maquoketa, Iowa.

WHITE CLOVER HONEY—Extracted, comb and chunk honey. Prices on request. Sample 15c.

F. W. Summerfield, Waterville, O.